LIBRARY
BUREAU OF CHEMISTRY
RECEIVED
NOV 9 1922
LIBRARY
RECEIVED
NOV 2 1922
U. S. DEPARTMENT OF AGRICULTURE

MEMBER OF THE A. B. C.

FIFTY-FIRST YEAR

PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

ESTABLISHED IN 1872

Vol. LXXV. No. 16 NEW YORK AND CHICAGO, OCTOBER 19, 1922 { Per annum. $4.00 { Single Copy, 10 Cents

SCANDINAVIAN-AMERICAN TRADING COMPANY
50 EAST 42 ST., NEW YORK CITY

We are now booking orders for
KRAFT and SULPHITE
for shipment over next year.
Pulp also available for immediate shipment from dock.

WOOD PULP

SEE PAGE 21

Diamond-F
PROTECTIVE PAPERS
Glassine
Vegetable Parchment
Parchmoid
Greaseproof
Diamond Fibre Receptacles of all kinds
Diamond State Fibre Company
Dept. 27
BRIDGEPORT, PENNSYLVANIA (near Philadelphia)

TRAIN SMITH COMPANY
Paper Mill Supplies
10 Milk St. (Old South Bldg.), Boston, Mass.
Packing House: Chelsea, Mass.
Branches: London-Liverpool

PARSONS TRADING COMPANY
Paper Exporters
17 Battery Place New York
London Stockholm Bombay Shanghai Wellington
Havana Buenos Aires Mexico Rio de Janeiro Naples
Parsons Trading Company (Australia), Limited
Sydney Melbourne

ATTERBURY BROS.
(INCORPORATED)
WOOD PULP, RAGS AND PAPER
STOCK, FRENCH CASEINE
45 NASSAU STREET (POTTER BLDG) NEW YORK

CABLE ADDRESS REGHAMMOND NEW YORK
TELEPHONE VANDERBILT 4568-9
R. F. HAMMOND
342 MADISON AVENUE
NEW YORK
WOOD PULP PAPER

PULP STONES
INTERNATIONAL PULP-STONE CO.
ELYRIA, OHIO

PRICE & PIERCE., Ltd
17 East 42d Street, New York
Sole Selling Agents for
Bathurst Company Ltd.
BATHURST, N. B.
Kraft Pulp and Easy Bleaching Sulphite

INTERNATIONAL PULP CO.
NEW YORK CITY
ASBESTINE PULP
837, U. S. PATENT OFFICE
FILLER
90% Retention

Entered as Second-Class Matter June 20, 1879, at the New York Post Office, Under Act of Congress, March 3, 1879
Published Every Thursday by the Lockwood Trade Journal Co., Inc., New York.

XUM

PULP AND PAPER
OF
EVERY DESCRIPTION
HUDSON TRADING COMPANY
300 Madison Avenue
NEW YORK
ESTABLISHED 1886
CABLE ADDRESS: "HUDTRACO," NEW YORK

DANA T. McIVER
High Grade Printing Paper
116 So. Michigan Avenue
CHICAGO
BOOK AND COATED PAPER
Car Lot and Tonnage Contracts

STEARNS
EVERYTHING IN WOOD OR WOODWORK 1849
WOOD TANKS
The A. T. Stearns Lumber Company
Established 1849
125 Taylor St., Neponset, Boston, Mass.
2

Cutting Dies

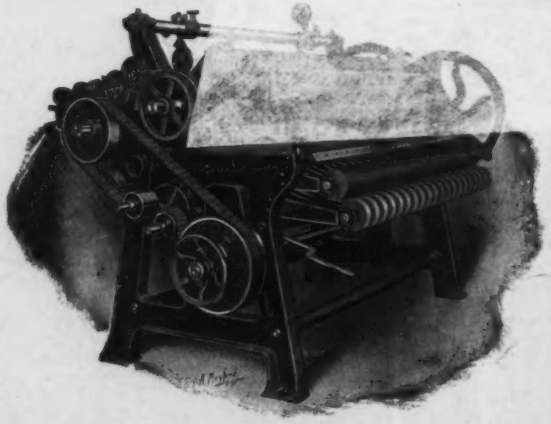
The success of cutting Dies requires skilful workmanship. We believe we can guarantee you this class of *Quality and Service.*

We specialize on Dies for all classes of particular work.

Send us your specifications.

The Hoggson & Pettis Mfg. Co.
New Haven, Conn., U. S. A.
4

Paper Cutters
Single, Duplex and Diagonal



Cutter Knives Patent Top Slitters
HAMBLET MACHINE CO.
LAWRENCE, MASS.

CASEIN

Standard Quality
Lowest Prices

The Casein Manufacturing Company

15 Park Row New York

Your Rosin Requirements

What are you looking for in rosin?

Dependable supply?

Cleanliness?

Uniformity in color and quality?

The Hercules Powder Co. can supply you with wood rosin to meet these requirements. Moreover, it places at your service the co-operation of a large and well equipped chemical organization. We are always glad to answer inquiries.

HERCULES POWDER CO.
Wilmington Delaware

SALES OFFICES:

New York, N. Y.	St. Louis, Mo.
Chicago, Ill.	Louisville, Ky.
San Francisco, Cal.	Buffalo, N. Y.
Chattanooga, Tenn.	Duluth, Minn.

HERCULES Naval Stores
Produced Under Chemical Control

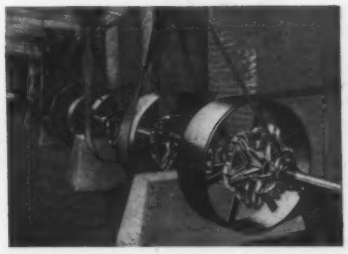
ALVAH MILLER, Pres. TOM T. WALLER, Vice-Pres.
NATH'L L. MILLER, Secy-Treas.

Craig-Becker Company
INC.

Domestic and Foreign Ground Wood and Sulphite

52 VANDERBILT AVE.
NEW YORK CITY

FRICTION CLUTCHES
TO MEET THE REQUIREMENTS



No one design of clutch can be adapted to all conditions. Recognizing the various requirements of different classes of work we have designed four styles.

STANDARD CLUTCH, 2, 3, 4 and 6 ARMS
DOUBLE GRIP CLUTCH, 4 and 6 ARMS
STEEL PLATE CLUTCH
EXPANSION CLUTCH

Send for Catalogue 35A.

Describing Friction Clutches, Also a Complete Line of High Grade Transmission Machinery

WELLER MFG. CO.
1820-1856 N. Kostner Ave. CHICAGO, ILL.

Sales Offices
NEW YORK BOSTON BALTIMORE PITTSBURGH DETROIT
CLEVELAND SALT LAKE CITY SAN FRANCISCO

ESTABLISHED 1882 INCORPORATED 1921

IMPORT EXPORT
RAGS NEW CUTTINGS
JUTE STOCK
ROPE

KATZENSTEIN & KEENE
(INCORPORATED)
63 PARK ROW, NEW YORK

J. ANDERSEN & CO.
21 EAST 40th STREET, NEW YORK CITY

Importers of Chemical Pulps
BLEACHED and
UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden.

TRADE JENKINS MARK Jenkins Bros

Jenkins method of manufacture—

The care exercised, and the standard set and maintained must necessarily produce a superior valve.

Every "Jenkins" is cast of the best metal and in a proportion that secures a heavier and stronger valve—one that is safe and dependable in severe as well as average service.

Valves for all requirements. Know the genuine by the Jenkins Diamond and signature.

JENKINS BROS.
New York Boston Philadelphia Chicago
Montreal London
2548-J

Jenkins Valves
SINCE 1864

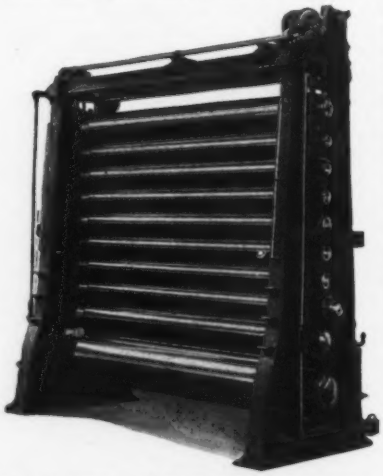
LOBDELL
CALENDERS

Equipped with Electric Motor Lift, Hydraulic Lift or Ratchet Lift all operated from the floor.

Chilled Iron Rolls of all sizes

Roll Grinding Machines

Micrometer Calipers



LOBDELL CAR WHEEL CO.
Wilmington, Del., U. S. A.

The White Tar Aniline Corp.
56 Vesey Street, New York Works: Kearny, N. J.

MANUFACTURERS OF

WHITAR
TRADE MARK REG.U.S.PAT.OFF.

COLORS FOR PAPER

OUR COLORS ARE OF HIGHEST CONCENTRATION AND ENTIRE UNIFORMITY

XUM

MEETING DEMANDS OF OUR CUSTOMERS

Jobbers of Fort Howard Products have found each successive consignment of Toilets, Napkins and Towels so good that their business with the retailer and consumer constantly increased on these lines.

Fort Howard Paper Co.
Green Bay, Wis.

Let Us Show You

Box Boards!
Paper Board Specialties!

what it means to do business with a house which **always** makes good.

On your next requirements, try

The C. L. LaBoiteaux Co.
Cincinnati Chicago New York Cleveland

Daily Capacity of 600 Air-Dry Tons

The extent of our production of High Grade
BLEACHED Sulphite Fibre
insures uniform quality, prompt shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire
NEW YORK CITY Woolworth Bldg. CHICAGO 110 So. Dearborn St.

Stickle Compound Condensing System and Automatic Steam Control for Paper Machines

The folder we sent out to the mills "HOW TO DRY PAPER" showing our automatic steam control and our compound condensing system for draining the dryers and heating the air with the discharge from the dryers to condition the machine room, should interest you. In many mills we can guarantee a saving of 20% in steam consumed in drying the paper and conditioning the air for the machine room.

OPEN COIL HEATER & PURIFIER CO.
INDIANAPOLIS, IND.
BOSTON **PHILADELPHIA**

The
St. Regis Paper Company
and the
Hanna Paper Corporation

Daily Capacity, 425 Tons

Newsprint
Catalog
Butchers' Manila
Packers Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

Manufacturers of
TARZAN Fibre Shipping Cases

General Sales Offices:
30 East 42nd St. New York
CHICAGO PITTSBURGH
648 McCormick Bldg. 1117 Farmers Bank Bldg.

TEXAS GULF SULPHUR

99½ Per Cent. Pure.

Produced from one of the largest known deposits in the world.

Texas Gulf Sulphur Company
General Offices
41 East 42nd Street, New York, N. Y.

Sulphur Deposit and Plant, Matagorda County, Texas

COLLINS MANUFACTURING COMPANY
SAMUEL R. WHITING, Pres. and Treas.

Manufacturers of
LOFT DRIED PAPERS
LEDGERS
BONDS
WRITING PAPERS

Mill:— North Wilbraham, Mass.
Main Office:
208 Race Street Holyoke, Mass.

Starch

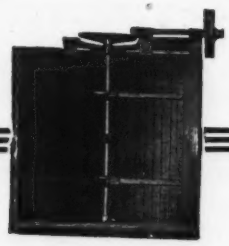
Paper manufacturers generally recognize the value of starch in the manufacture and coating of paper.

To obtain definite results in any desired direction in the preparation of paper, not merely a difference of grade, but a difference of kind or variety of starch is required.

Our carefully controlled and thoroughly standardized processes enable us to produce exactly the various starches which the paper industry has found economical and efficient.

Corn Products Refining Company
17 Battery Place New York

Starch



A Good Mixer

The use of the original Caldwell Agitator has been recognized for many years by the paper trade as the most efficient method for mixing, stirring and holding liquids in suspension.

Every part of the Caldwell Agitator is made in our own plant, correctly designed and substantially constructed. If the substance to be agitated affects iron, acid resisting metals are used.

As originators of this style Agitator, with over 30 years' experience, we are well equipped to satisfactorily solve your mixing problems.

Let us tell you what kind of tanks will best serve the requirements of your plant.

Send for Catalog

W. E. Caldwell Co.
Incorporated
2040 Brook St., Louisville, Ky.

Caldwell TANKS AND TOWERS

1864 1922

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt probems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

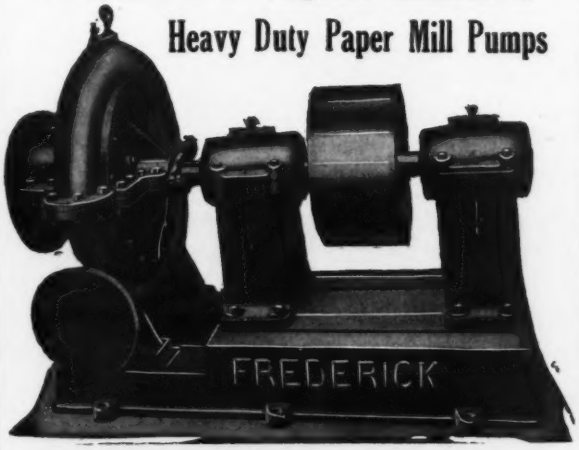
SOLD BY
BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

FREDERICK

Pulp and Paper Mill Pumps

We Specialize in the Design and Manufacture of

Heavy Duty Paper Mill Pumps



The Frederick Iron & Steel Co.
FREDERICK—MARYLAND—U. S. A.
Offices in principal cities

POTDEVIN'S 20

PAPER BAG MACHINES

TUBERS and BOTTOMERS for

Printed Glassine Bags,
Printed Garment Tubes,
Nail Bags, Sacks & all other types.

POTDEVIN MACHINE CO.
Department 9
1223—38th Street Brooklyn, N. Y.

XUM

EVERYTHING IN

PULP & PAPER

J. F. PATTON CO., INC.
342 Madison Ave.
New York City

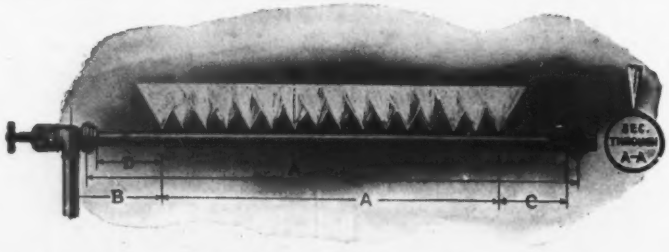
(Cable address - Pulp, N.Y.)

APPLETON FELTS

Quality Paper
Quantity Production
is another way of saying
APPLETON
Felts and Jackets

APPLETON WOOLEN MILLS
APPLETON, WIS.

THE VEDDER "RAINSTORM" SHOWER PIPE



MANUFACTURED BY

THE SMITH & WINCHESTER MFG. CO.

SOUTH WINDHAM, CONN.

ESTABLISHED 1828

A Complete Line of Paper Bag Making Machinery.

BUILDERS OF
DEPENDABLE MACHINERY
FOR
THE PAPER MILL

Undercut and Overcut Trimmers.
Die Cutting Presses.

HELICOID CONVEYOR

CONTINUOUS flights (without laps or rivets), and heavier flights on larger pipe, make Caldwell Helicoid Conveyor by far the best on the market. It is the recognized standard conveyor of this type.

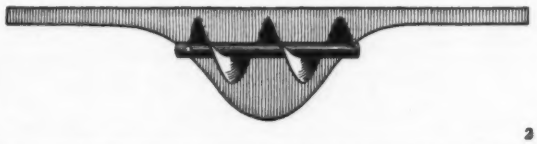
The price is no more than for ordinary screw conveyor.

H. W. CALDWELL & SON CO.

LINK-BELT COMPANY, OWNER

Dallas, Texas, 709 Main Street—Chicago, 17th Street and Western Ave.—New York, Woolworth Bldg.

CALDWELL



2

CUT down excessive wrapping paper investment. Why carry two wrapping paper lines for one wrapping paper purpose?

MOSINEE

presents a perfect wrapping paper, weight and strength for each wrapping purpose. Made in all weights, from 15 lb. to 100 lbs. basis. The one complete, standardized and economical line of wrapping paper sold.

MOSINEE KRAFT

"The Wrapper That Delivers the Goods"

Fly Bars
Bed Plates
Jordan Fillings
Knives

For all makes of Machines.

For all classes of work.

We can offer a desirable and dependable source of supply.

Let us quote on your requirements.

JOHN W. BOLTON & SONS, Inc.

Lawrence, Mass.

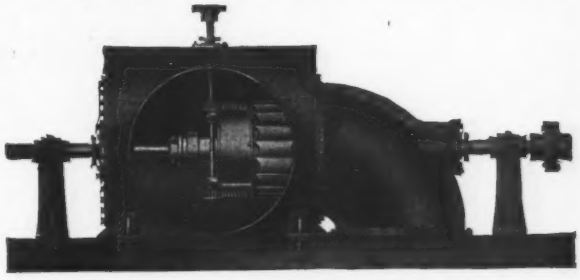
High Grade Fly Bars, Bed Plates, Jordan Fillings and Knives.

5

WATER WHEELS

WE MANUFACTURE

Complete Water Power Equipment



McCormick "Holyoke" Turbines.
Head Gates.
Trash Racks.

J. & W. JOLLY, Inc.

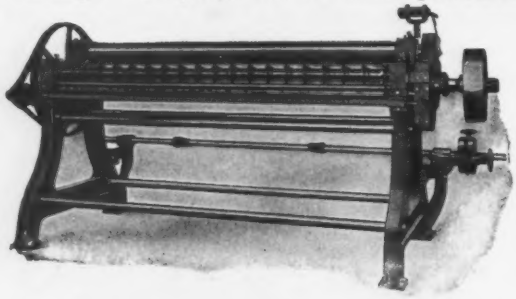
Holyoke, Mass.

2

Catalog. Or representative will call.

The "Dietz" Toilet Paper Machines

For making Toilet Paper Rolls with or without perforations



Self-Adjusting—Easy to Operate
WE ALSO MANUFACTURE

AUTOMATIC TUBE MACHINES

FOR MAKING TUBES FOR TOILET PAPER ROLLS
CAPABLE OF PRODUCING 3,600 WIRE STITCHED
TUBES PER HOUR

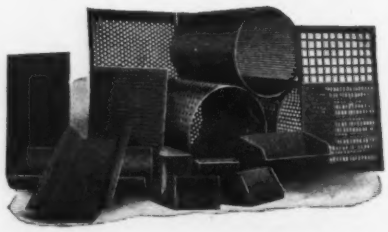
Also machines for making Sanitary Crepe Paper Towels, Slitting and Rewinding Machines, Drop Roll Slitters, Side and Center Seam Merchandise Envelope Machines, Photo Mount Beveling Machines, Candy Bag Machines, Punch Presses for Playing Cards, Rotary Card Cutting and Collating Machines, Etc. CORRESPONDENCE SOLICITED.

DIETZ MACHINE WORKS
126-128 Fountain St., Philadelphia, Pa.
Corner Waterloo St., Below Diamond St., Bet. Front and 2nd Sts.

PERFORATED METAL SCREENS

IN STEEL AND ALLOYED METALS

For Pulp and Paper Mills



Elevator Buckets, Conveyor Flights and Troughs, General Sheet and Light Structural Work

Light and Heavy Steel Plate Construction

HENDRICK MANUFACTURING CO.
75 Dundaff Street Carbondale, Pa.
New York Office, 30 Church St.
Pittsburgh Office, 544 Union Arcade

The Sandy Hill Iron & Brass Works

Hudson Falls, N. Y.

Manufacturers of **Paper and Pulp Mill Machinery**

THE CLARK-AIKEN CO.

Successors to

H. C. Clark & Son Machine Co.

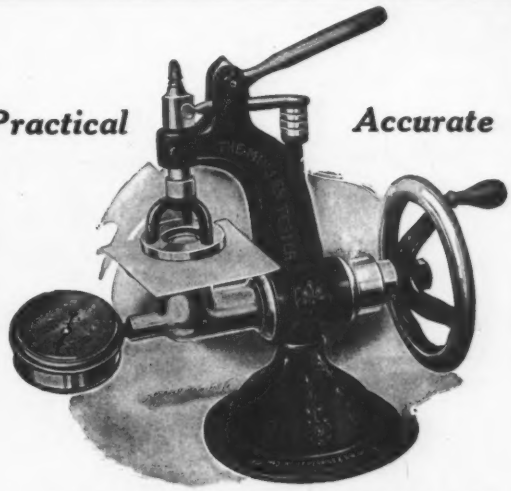
PAPER MILL MACHINERY

LEE, MASS.

Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—

Cylinder Molds—Marshall Drives—Slitters and Rewinders —Reels—Dryers with Improved Packing Boxes— Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

Practical *Accurate*



UNIFORMITY

of stock is assured by the use of the standard MULLEN PAPER TESTER, in constant use by the United States Government, and by Paper Makers and Users the world over.

For full information, write Dept. C 11

B. F. PERKINS & SON, Inc., Holyoke, Mass.

Manufacturers of the Mullen Paper Tester—the Perkins Tensile Tester—Perkins Calender Rolls—the Perkins Pressure Bulker—Perkins Fans.

KENWOOD MILLS Albany, N. Y. Plant

KENWOOD BOARD FELTS

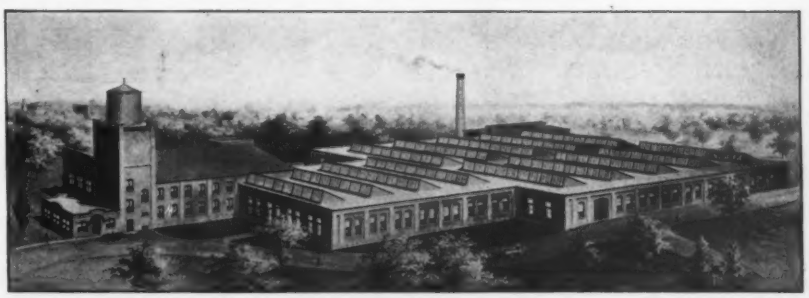
TOP, BOTTOM and PRESS

For HIGHEST production, driest sheet and longest life

Whether the demands of the board market are for finish or for maximum production at low cost, Kenwood Board Felts will give you best results.

F. C. HUYCK & SONS

Kenwood Mills, Albany, N. Y.
Kenwood Mills, Ltd., Arnprior, Ont., Can.



KENWOOD MILLS, Ltd. Arnprior, Ontario, Plant

HANS LAGERLOEF, Pres. and Treas.
ORVAR HYLIN, Vice-President
MAURICE LONDON, Secretary

Telephones
Murray Hill { 4246 / 4247

TRADE MARK

Lagerloef Trading Company, Inc.

WOOD PULP

52 VANDERBILT AVENUE, NEW YORK, N. Y.

Sole Agents in U. S. A., Canada, Mexico and Cuba for

FINNISH CELLULOSE ASSOCIATION, HELSINGFORS, FINLAND
AND
FINNISH WOOD PULP UNION, HELSINGFORS, FINLAND

Splicing Tissue
INDIAN AND STAR BRANDS
specially prepared for
PAPER MILLS

E. M. Sergeant Co.
15 EAST 26TH STREET
New York, N. Y.

E. J. KELLER COMPANY
INCORPORATED
200 FIFTH AVENUE
NEW YORK

FOREIGN AND DOMESTIC
PAPER MAKERS' SUPPLIES
CHEMICAL AND MECHANICAL PULPS
COTTON, JUTE AND FLAX WASTES
EAST INDIA MERCHANDISE

Blotting Paper of the Best Quality
MANUFACTURED BY
THE EATON-DIKEMAN COMPANY
LEE, MASS.

Manufacturers of Blotting, Matrix, Filter and all other grades of absorbent papers.

Registered brands Magnet and Columbian, also Lenox and Arlington.

SEND FOR SAMPLES AND PRICES

ESTABLISHED 1851
IRA L. BEEBE — CYRUS E. JONES

IRA L. BEEBE & CO.
132 Nassau St., New York

IMPORTERS AND DEALERS IN
WOOD PULP

FORGE LAP-WELDED
SOFT STEEL
DIGESTERS
ALL SEAMS LAP-WELDED
AMERICAN WELDING COMPANY
CARBONDALE, PA.

VERTICAL SEAMS HEATED WITH FURNACES AND WELDED WITH HYDRAULIC POWER

CIRCUMFERENTIAL SEAMS HEATED WITH FURNACES AND HAMMER WELDED

We offer a full line of

COLORS

and furnish precise directions on application for

Beater Dyeing, Staining and Coating

Half a century's experience enables us to furnish goods answering requirements and to give reliable service

THE HELLER & MERZ CO.

BOSTON CHICAGO NEW YORK PHILADELPHIA SPRINGFIELD, MASS.

LET US QUOTE YOU OUR PRICES ON HYDE MANGANESE BRONZE BEATER BARS, ALSO OUR ACID RESISTING

BRONZE CASTINGS

SCRAP METALS ARE AN UNKNOWN COMMODITY WITH US AS WE USE NOTHING BUT VIRGIN METALS IN OUR BRONZES

PUT A HYDE CASTING TO THE SAME TEST AS SOME OF THE OTHERS YOU ARE USING AND NOTE RESULTS

MANUFACTURED BY

HYDE WINDLASS CO., Bath, Maine

XUM

B.D.

"MS"

MITSCHERLICH SULPHITE

MACKMYRA SULFIT A-B

GEFLE, SWEDEN

Manufacturers of a strong and uniform unbleached sulphite for paper mills requiring a reliable product.

Production 20,000 Tons

SOLE SELLING AGENTS

BULKLEY DUNTON & COMPANY
75-77 DUANE STREET. NEW YORK
Established 1838

MEMBER OF THE A. B. C

PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

FIFTY-FIRST YEAR

PUBLISHED EVERY THURSDAY BY THE

LOCKWOOD TRADE JOURNAL COMPANY, INC.

LESLIE R. PALMER, President — J. W. VAN GORDON, Vice-President

Telephone { 2380 / 2381 / 2382 } Vanderbilt — *10 EAST 39TH ST., N. Y., U. S. A.* — Cable Address Catchow, New York

Western Publication Office—431 S. Dearborn Street, Chicago
New England Office—Room 46, 127 Federal Street, Boston
Washington Office—L. M. Lamm, 63 Home Life Bldg.
Western New England News Office—Michael Connor, Holyoke
London Office—Stonhill & Gillis, 58 Shoe Lane

THE PAPER TRADE JOURNAL is the pioneer publication in its field, and has for many years been the recognized Organ of the Paper and Pulp Industry. Its circulation is greater than the combined circulation of all other publications in the field. Entered at New York Post Office as second-class mail matter.

Terms of Subscription

UNITED STATES AND MEXICO.....Per year, $4; 6 months, $2; 3 months, $1
CANADA AND FOREIGN COUNTRIES IN POSTAL UNION.....Per year, $6
SINGLE COPIES .....10 cents

Other Publications of Lockwood Trade Journal Company, Inc.

AMERICAN STATIONER AND OFFICE OUTFITTER (Weekly).....Per year, $3
LOCKWOOD'S DIRECTORY OF THE PAPER STATIONERY AND ALLIED TRADES (Annual).....Per copy, $7

Vol. LXXV. No. 16 — NEW YORK AND CHICAGO — Thursday, October 19, 1922

Table of Contents

News of the Trade:

	PAGE
Production of Wood Pulp During August	16
Increase in Price of News Print in Canada	17
Rushing Work on Vegetable Parchment Mill	17
Offer Great Eastern Timber Limits For Sale	17
Price Advances in Chicago Accompany Convention Week	18
New Book of American Writing Paper Co.	18
Changes in Sefton Mfg. Corp.	18
H. B. Prather & Co. in New Quarters	18
Paper Orders Increasing in Philadelphia Market	20
Paper Stock Continues Active	20
Ward Co., Carrying Complete Line of Blanks	20
Book Binders Material Men Meet	20
Thomas W. Price Co. Outing	20
General Paper Products Co. Expands	20
Auer & Twitchell Co. Activities	22
Thomas F. Pinder to Build	22
Harris Kardon Moves Executive Offices	22
To Study Uses of Rubber Latex in Paper	22
Price Trend Still Upward in Toronto Paper Market	24
Better Demand For Pulpwood	24
Great Lakes Co. May Erect $3,500,000 Mill	24
Need More Stringent Forestry Regulations	24
Fort Frances Co. Gets Timber Area	24
Preliminary Work Started on Wisconsin Paper Mill	26
Experiment With Bark For Fuel	26
Kimberly-Clark Inaugurates Safety Contest	26
Invents New Couch Roll	26
To Resume Fox River Navigation	26
The New Moore Bleeder Type Turbine	28
Kalamazoo Paper Co. Has Garden Contest	30
Eagle Plant Sold at Auction	30
Will Start New Paper Co.	30
New York Trade Jottings	32
New Issue by Belgo Co.	32
Bids and Awards For Government Paper	34
Boston Paper Market and News of The Trade	34
Commerce Commission Suspends Schedules	34
Correspondence Courses on Wood Pulp	36
Description of University Extension Division Courses	36
Recent Incorporations	38
Swedish Wood Pulp Market	38
Eastern Mf'g. Co. Changes to Oil Fuel	38
Paper Man Held For Attempted Suicide	38

Editorial:

Canadian Paper Exports Increase	40
The Coming of Good Business	40

Obituary:

Edward M. Adams	30
Sidney H. Hanson	30

Technical Section:

Sizing Paper With Rosin	43
The Preservation of Decaying Wood Roofs	47
Sulphate of Alumina in the Sizing of Paper	51
Current Paper Trade Literature	53
Pulp from Reeds and Straws	53
Chlorinated Cellulose	53
Sulphite Waste Liquor	54
The Drying of Paper	54
A Canadian Source of China Clay	55
Electricity In the Paper Mill	55

Market Review:

New York Market Review	62
Market Quotations	63
Miscellaneous Markets	66

Want and For Sale Advertisements, Pages 68, 69 and 70

XUM

PRODUCTION OF WOOD PULP DURING MONTH OF AUGUST

According to Statistics Just Furnished by the Federal Trade Commission the Stocks in Hand at the End of the Month of Ground Wood Equaled Thirty-four Days' Average Output, of News Grade Sulphite Nine Days' Average Output, of Bleached Sulphite Eight Days' Average Output and of Easy Bleaching Sulphite Five Days' Output—Stocks of Other Grades of Pulp.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 16, 1922.—In connection with the Federal Trade Commission's current statistics of the paper industry, a summary of the monthly reports from manufacturers of wood pulp and other kinds of pulp used in paper making is submitted herewith for the month of August, 1922. The table shows the kind of pulp, the stocks, production, pulp used and shipments for the month. The pulp shipped during each month represents only pulp shipped to a concern different from the one producing it. Loss of production is shown by giving the idle time reported by each company for each kind of pulp.

Pulp Production

The following is a tabulation of the production, pulp used by the company producing it, shipments to outside concerns, and stocks of finished pulp in tons of 2,000 pounds on an air-dry basis, for August, 1922, compared with August, 1921, for the operating mills. The average production is based upon the reports covering the years 1917 to 1921, inclusive, and the average stocks are based upon the stocks carried for the years 1919, 1920 and 1921.

	No. of Mills	On hand 1st of month. Net tons	Production month. Net tons	Used for month. Net tons	Shipped during month. Net tons	On hand end of month. Net tons
Ground Wood Pulp						
August, 1922....	159	187,580	109,870	131,905	8,030	157,515
August, 1921....	166	196,088	73,666	95,302	7,851	166,601
August, 1920....	171	137,440	111,205	125,098	10,048	113,499
August, 1919....	156	181,623	85,907	106,796	7,012	153,722
Average	...	.....	124,362	.....	.....	147,073
Sulphite, News Grade						
August, 1922....	60	20,796	62,232	56,215	5,470	21,343
August, 1921....	66	21,389	50,327	41,689	7,424	22,603
August, 1920....	64	14,162	71,818	61,360	11,889	12,731
August, 1919....	63	23,727	63,407	56,932	9,651	20,551
Average	...	.....	64,935	.....	.....	20,685
Sulphite, Bleached						
August, 1922....	33	12,446	43,963	26,049	17,385	12,775
August, 1921....	32	13,934	24,157	16,759	10,527	10,805
August, 1920....	32	3,808	50,654	26,560	22,180	5,722
August, 1919....	30	16,046	46,507	24,165	26,751	11,637
Average	...	.....	42,984	.....	.....	9,507
Sulphite, Easy Bleaching						
August, 1922....	12	1,218	5,316	4,396	1,050	1,088
August, 1921....	8	581	4,912	3,057	1,831	605
August, 1920....	7	675	6,398	3,431	2,539	1,103
August, 1919....	8	2,091	5,842	3,357	2,951	1,625
Average	...	.....	6,480	.....	.....	1,346
Sulphite, Mitscherlich						
August, 1922....	7	1,467	6,270	4,121	1,707	1,909
August, 1921....	7	2,449	5,662	3,233	2,565	2,313
August, 1920....	7	1,142	7,142	4,268	2,904	1,112
August, 1919....	7	1,243	7,242	4,289	2,655	1,541
Average	...	.....	6,615	.....	.....	1,831
Sulphate Pulp						
August, 1922....	22	7,474	24,213	16,396	7,947	7,344
August, 1921....	21	6,200	16,628	11,655	3,199	7,974
August, 1920....	22	2,248	20,749	13,025	7,076	2,896
August, 1919....	21	6,369	16,326	11,075	5,982	5,638
Average	...	.....	14,094	.....	.....	6,499
Soda Pulp						
August, 1922....	28	7,854	29,979	19,004	11,271	7,558
August, 1921....	27	9,980	19,303	14,130	6,147	9,006
August, 1920....	27	3,738	37,617	19,956	16,518	4,881
August, 1919....	27	7,674	34,728	20,007	15,332	7,063
Average	...	.....	32,184	.....	.....	6,931
Other than Wood Pulp						
August, 1922....	5	285	927	785	102	425
August, 1921....	5	152	521	537	0	136
August, 1920....	4	109	382	367	59	65
August, 1919....	6	378	1,028	882	138	386
Average	...	...	864	...	...	154
TOTAL—for all grades						
August, 1922....	...	239,220	282,570	258,871	52,962	209,957
August, 1921....	...	250,773	195,176	186,362	39,544	220,043
August, 1920....	...	163,322	305,965	254,065	73,213	142,000
August, 1919....	...	239,151	260,987	227,503	70,472	202,163
Average	...	.....	292,518	.....	.....	194,026

Total stocks of all grades of pulp in the mills on August 31, amounted to 209,957 tons. Mill stocks of News Grade, Bleached, Mitscherlich, and "Other than Wood Pulp" increased during the month, stocks of all other grades decreased.

LOSS OF PRODUCTION

Month of August, 1922 (With August, 1921, for Comparison).

GRADE	Lack of orders		Repairs		Other Reasons		Total	
	1922	1921	1922	1921	1922	1921	1922	1921
Ground Wood Pulp								
Number of grinders	32	65	183	56	543	555	739	676
Total hours idle	**7,124**	**26,692**	**15,670**	**18,587**	**165,026***	**155,723**	**187,820**	**201,002**
Sulphite, News Grade								
Number of digesters	8	52	11	33	33	39	52	124
Total hours idle	2,476	7,052	677	1,805	13,324	5,696	16,477	14,553
Sulphite, Bleached								
Number of digesters	40	57	7	10	18	9	65	76
Total hours idle	2,577	10,811	314	735	2,284	385	5,185	11,931
Sulphite, Easy Bleaching								
Number of digesters	0	6	0	3	0	10	0	19
Total hours idle	0	144	0	80	0	725	0	949
Sulphite, Mitscherlich								
Number of digesters	0	16	8	7	0	0	8	23
Total hours idle	0	710	190	494	0	0	190	1,204
Sulphate Pulp								
Number of digesters	2	25	5	15	22	0	29	40
Total hours idle	48	2,784	160	997	581	0	789	3,781
Soda Pulp								
Number of digesters	8	107	4	19	65	9	77	135
Total hours idle	816	29,587	140	3,851	22,440	2,739	23,396	36,177
Other Grades								
Number of digesters	1	2	0	0	4	0	5	2
Total hours idle	360	700	0	0	1,056	0	1,416	700
TOTAL number of machines	91	330	199	143	685	622	975	1,095
Total hours idle	13,401	78,480	17,151	26,549	204,721	165,268	235,273	270,297

* Includes 135,498 hours due to water and power conditions.

Ratio of Stocks to Average Production

Comparing the stocks on hand at the domestic pulp mills at the end of the month with their average daily production based on the reports covering the years 1917-1921, inclusive, the figures show that:

Ground wood pulp stocks equal 34 days' average output.
News grade sulphite mill stocks equal 9 days' average output.
Bleached sulphite mill stocks equal 8 days' average output.
Easy bleaching sulphite mill stocks equal 5 days' average output.
Mitscherlich sulphite mill stocks equal 8 days' average output.
Sulphate mill stocks equal 14 days' average output.
Soda pulp mill stocks equal 6 days' average output.
Mill stocks of "other than wood pulp" equal 13 days' average output.

Total mill stocks of all grades equal 19 days' average output.

Loss of Production

The idle machine time of grinders and digesters reported to the commission for the month of August, 1922, is shown in the attached tabulation. The number of grinders and digesters include only those for which idle time was reported during the month. The total number of machines may include duplications because the report may count the same machine twice if idle for different reasons during the different parts of the month. The reasons tabulated for lost time are "lack of orders" and "repairs." "Other reasons" include water conditions, etc. The time lost in August, 1921, is shown by grades and reasons for purposes of comparison. Neither the number of machines nor hours idle include idle machines and the time lost in 14 mills not in operation during the month.

Increase in Price of News Print in Canada

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 16, 1922.—The Canadian Export Paper Company has started making contracts for news print for the first six months of next year on a basis of 3.75 cents per pound, or $75 per ton. An announcement of this sort has been expected, as it was known that Canadian producers had met at New York last week, probably to discuss conditions anent the marketing of their product next year. Recent strength of securities of news print producing companies on the local stock market has been regarded as anticipating an advance in the price, estimates ranging from $75 to $80.

The increase mentioned applies only to the companies represented by the Canadian Export Paper Company, that is, Laurentide, Brompton and Price Brothers, representing a daily tonnage of upwards of 700 tons. It is understood that there was serious discussion of $80 news print, but that it was decided that the $75 rate would hold the market better than the higher one and eliminate the danger of any artificial curtailment of consumption.

Just what the action of other big news print producers will be remains to be seen. That some of them favored an $80 rate is known, but the contract price decided upon by the Canadian Export Company, has, in the past, owing to the large tonnage handled by this company, been the ruling price for contract paper from Canadian mills.

It has been expected that the next price announcement would be for the first quarter only, reverting to the custom which prevailed during the two or three years preceding the slump, when the prices were decided upon a quarter ahead. The action may be interpreted as an effort on the part of the producers to stabilize the industry, and in that respect may be taken as a constructive step, for, in a too high price, there was not only the danger of curtailment of consumption, but of another era of over-extension of the industry in this country, which would react to the disadvantage of established companies.

Rushing Work on Vegetable Parchment Mill

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., October 16, 1922.—Literally an army of workmen are now engaged in rushing the various lines of construction work that is being carried on out Parchment way. Gangs of carpenters, brick masons and laborers are being employed on the erection of the new paper mill of the Vegetable Parchment Paper Company filtering plant, storage warehouse and numerous residences. Special endeavor is being made to get all this work under roof before the heavy snows of winter arrive.

The new paper mill is progressing rapidly. While work has not started as yet on the finishing room, much of the rest of the immense structure is well under way. All footings and foundation are in and brick masons are working on the sidewalls. A high grade quality of vitrified brick is being used in the upright. The 150 foot stack is completed. It is pure white, with black trimmings at the top. This stack will be operated with a forced draft, as a stack of natural draft would have to be 600 feet high to take care of the smoke and gases generated in the new power plant.

The filtration plant is a big structure, just beginning to assume proportions. Workmen have finished pouring concrete on the north half of the building and are now engaged in the same line of work on the south division.

A large settling tank with 14 apartments, designed to handle the white water from the No. 1 mill, has been erected in the mill courtyard. Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Company, announces that this tank is the result of a combination of minds and is designed to reclaim stock that is now going to waste.

"Some of the ideas embodied are our own," said Mr. Kindleberger. "Others were developed during my recent trip to mills in Germany."

Over near the Glendale division is located the new storage warehouse for general mill supplies. It is now under roof and final touches on the interior are being made. The side platforms are truck floor high, thus facilitating loading and unloading. The completion of this building will greatly relieve congested conditions in various divisions of the plant and allow more space for manufacturing operations.

There is no mill in the Kalamazoo valley district that has the garage capacity enjoyed by the Kalamazoo Vegetable Parchment. A new structure over 200 feet long has recently been added, allowing the housing of nearly 100 touring cars at this time. These accommodations are in addition to those provided for the company's trucks, buses and delivery wagons.

New homes are spring up everywhere in Parchment. Hobbs & Lawler have started their first allotment of ten houses, north of the school house, while three or four structures are going up north of the main river road. The handsome residence for Mr. Kindleberger is directly opposite the No. 1 mill. It is under roof and the exterior is finished, but much of the interior work remains to be done.

The tenement house and barns have moved to their proper places, set on new foundations and greatly improved by painting. Landscape gardeners are now engaged in surveying the grounds about the Kindleberger place and when all improvements are carried out, it will be one of the really attractive homes of the city.

Offer Great Eastern Timber Limits for Sale

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., October 16, 1922.—The Royal Trust Company, of Montreal, as assignee for the Great Eastern Paper Company, Limited, is offering for sale by tender 1,400 acres of freehold timber lands and 450 square miles of timber limits under license from the Crown, also water powers, saw mill, pulp mill, etc., situated on the Magdalen River, Que. Tenders have to be sent in by November 3 next.

XUM

PRICE ADVANCES IN CHICAGO ACCOMPANY CONVENTION WEEK

All Grades of Paper Advance Steadily—Dealers Eagerly Anticipate Fall Convention of American Paper and Pulp Association—Car Shortage Delays Schedule Shipments But Coal Situation Relaxes—Believe High Cost of Raw Materials Will Warrant Continued Price Advances Until the End of the Year—Other News and Jottings of the Chicago Trade.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, October 14, 1922.—Steady advances on all grades of papers and an increase of sales have been the reports of all the trade. The majority of the merchants are more anxious over the coming convention than they are over this week's business. All preparations have been made and the numerous committees have reported that everything is in readiness.

Paper shipments have taken a turn for the worse and nearly all concerns are using every effort to relieve customers of their anxiety. Several firms have reported that shipments from the east are 15 days late and that the railroad officials are unable to give them satisfactory information as to the arrival of cars.

Coal shipments have been improved and the manufacturers have been urged to expedite the movement of coal cars, to load cars to carrying capacity, to refrain from loading of coal into cars which have no billing and to unload cars immediately upon arrival. All steamship lines are operating to full capacity on the Great Lakes and the seaman's strike is not hindering transportation in the least.

Nearly all the officials have agreed that prices will keep on advancing until the first of the new year. Most all raw commodities and necessary merchandise for the manufacture of paper have increased and this makes it requisite to raise the prices on the finished article. Mills in this district have made favorable reports, running to full capacity, orders and coal adequately being received.

New Book of American Writing Paper Co.

The American Writing Paper Company has recently issued its new handbook of paper and its uses. The book consists of 300 pages and is one of the most valuable ever printed. The sample folder consists of three separate sample books and an information catalogue with a price list. The first book contains samples of bonds, writings, linens and ledgers. The second book consists of samples of cover papers, offset and book. The third book has samples of bristols, papeteries, mimeographs, weddings and other specialties. In the catalogue of information there is a price list, charts of every use for which the many kinds of paper made by the company can be used, relative weights and many other important features.

Notes and Jottings of the Chicago Trade

G. S. Johnston, sales manager of the Western Paper Company, Omaha, Neb., has returned from a business trip to the Pacific coast.

C. P. Sheldon, formerly with Bradner Smith Company, has allied himself with the Whitaker Paper Company. Mr. Sheldon will be officially connected with the order department of the company.

F. L. McCellan, of the McCellan Paper Company, of Minneapolis, transacted business amongst the Chicago trade during the past week. Business in the northwest has greatly improved in his estimation.

Bradner Smith & Co. report that their campaign of supplying their trade with blotters to be used for advertising purposes is working out successfully. The company intends to give to the printers' customers series of twelve different form blotters to be distributed amongst the printers' advertising trade. It is the idea of the company to supply a different form of blotter to the furniture, banker, clothier, and every retailer that needs advertising successfully to conduct his business.

R. S. Bull, sales manager of the Bradner Smith Company, has returned from a business trip to Holyoke, Mass. Mr. Bull believes that business throughout the country is improving and general conditions point to bigger business in the future.

Blunden-Lyon Company, 730 West Monroe street, Chicago, is conducting large sales on bonds and papers. The company has recently reclassified its capital stock and the officials of the company report that business is very good.

The board of directors of the International Paper Company has declared a regular quarterly dividend of one and one-half per cent, on the preferred capital stock of the company, payable October 16, to preferred stockholders of record at the close of business, October 6.

Edward C. Burger, representative of the Schmidt & Ault Company, 111 West Washington street, announced that the market in general was advancing and shipments have been more noticeably delayed. Waste paper had advanced very rapidly and the market is still going up.

Miss H. G. Arington has accepted the position as secretary for J. H. Coy, of the Flambeau Paper Company.

S. W. Simpson to Superintend Allied Mills

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., October 14, 1922.—Samuel W. Simpson, one of the best known papermakers in the middle west, has just been advanced to the position of general superintendent of the Allied Paper Mills, with offices at the King division. Mr. Simpson has been, for a long period of years, a resident of Otsego, where he originally held the position of superintendent of the Bardeen Paper Company, now a unit of the Allied Paper Mills. He was also prominently identified with the organization of the MacSimBar Paper Company, being vice-president and director of that concern. He was one of the original founders of the Wolverine Paper Company.

The promotion tendered him, forces Mr. Simpson to move to Kalamazoo. His family will be located at 747 Academy street, lease of that property having been closed. William Carroll, for several years assistant superintendent of the Bardeen mills, becomes superintendent, thus filling the vacancy made by the advancement of Mr. Simpson to the post in this city.

Changes in Sefton Mfg. Corp.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, October 16, 1922.—W. J. Evans, Jr., has resigned as general manager and S. R. Van Horne as sales manager of the Sefton Manufacturing Corporation. Resignations were effective September 1, 1922.

Announcement is made of the apointment of Colonel H. B. Clark as vice-president; H. L. Barnes as general manager; and J. A. Young as sales manager, which appointments are now effective.

The general offices of the corporation have been removed from the plant in West 35th street at Chicago, to the 19th floor of the building located at 59 East Madison street.

H. B. Prather & Co. in New Quarters

[FROM OUR REGULAR CORRESPONDENT]

CLEVELAND, Ohio, October 16, 1922.—H. B. Prather & Company, paper and pulp mill engineers, are now located in their new offices, 350 Kirby Building, Cleveland. H. P. Prather, son of the late H. B. Prather, is now president and general manager and is in position to give service of the highest quality from the knowledge gained through the past experience of the firm.

XUM

For Prompt or Future Shipment!

KORSNÄS KRAFT

KORSNÄS

For Samples and Quotations Write or Wire

A. J. PAGEL & CO., Inc.

Sole Agents

347 Madison Avenue New York City

PAPER ORDERS INCREASING IN PHILADELPHIA MARKET

Mill Quotations for Both Fine and Coarse Papers Also Are Gradually Rising—All Varieties of Paper Stock Continue Active—Roofing Paper Business Is Quite Active Although Trade Is Not as Satisfactory as It Was Expected It Would Be at This Time—General Paper Products Co. to Extend Its Plant Facilities—Thomas F. Pinder to Erect New Warehouse Building for Coating Plant.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, October 16, 1922.—While mill quotations on nearly all grades of both fine and coarse papers continue to rise during the week, although in but small amounts, orders for both increased in a much larger proportion. Indeed, the week's business was quite the best of any enjoyed this year and the trade is convinced that, good as it was, it is only the prelude of much better times ahead. No one sees in the business horizon the slightest evidence of any disturbing conditions.

Leading in the advances made by the mills were rag and rag content bonds, which advanced from 5 to 10 per cent; sulphite bond which moved upward about 5 per cent and both No. 1 and No. 2 krafts which increased slightly over 5 per cent. All the grades of wrapping papers are strongly held and even tissues, which recently were a drug on the market, now are firm. Analysis of the improvement fails to disclose any particular cause other than the general increase in all industrial and commercial activity. The printing industry is not yet by any means out of the long period of depression which it has been undergoing, but the end certainly is in sight and confidence—and perhaps the apprehension that delays mean higher prices, have stimulated the placing of business for some time in the future rather than, as in the past, for immediate necessities. This greater prosperity and the equitable financial adjustment of the hitherto disproportionate differences between prices on cases and on reams has virtually solved the long standing problem of small order business. Where until mid or late September printers were ordering in reams or even quires, they now are placing business on a case lot basis.

Paper Stock Continues Active

Packers of paper stock report a continuance of activity which now embraces all lines, even the erstwhile sluggish hard white entering into the procession. Long experience of the stock packers shows that there is always one brand that lags behind the rest and since the year's beginning, hard white has been this stock. During the last week, however, it began to move. It is only selling in the neighborhood of four cents, whereas soft white is bringing from three and a half cents to three and three quarters. While this difference is out of logical proportion, it is one which the trade believes will be readjusted in the near future when the writing market, the cover paper market and others in which this grade is used have converted their present stock into paper. During the week, too, the stock packers were able to note, in the largely increased supplies which are coming in from publishers and other producers of waste, their increased prosperity. The mills, however, are absorbing the augmented collections of stock quite as fast as they are being brought in and since there is not the slightest evidence of an accumulation there is, consequently, no probability of a break in prices.

Roofing Paper Business More Active

The roofing paper business, with the open season and the revival of construction work on a broad scale, is quite active, but business is not yet up to the mark which had been anticipated. The paper and felt roofing trades believe that this is due, in part, to the awakening of the metal roofing industry, which for years conducted no propaganda, with the result that more and more business slipped away from them and went to the manufacturers of prepared roofings.

Ward Co. Carrying Complete Line of Blanks

The D. L. Ward Company again is carrying a complete line of blanks, coated and uncoated; bristols, indexes, translucents, tough checks; railroad boards, and tags in the various grades. The trade will recall that owing to the fullness of the stocks at the Sixth street warehouse, it becomes necessary to do away with some of these lines except on the basis of mill shipments. These difficulties have now been overcome and the company announces that its stock is complete. One of the most important lines it will handle will be the Falpaco blanks, made by the Falulah Paper Company, and the latest advices indicate that the stock is now in transit and should be in the warehouse not later than October 15.

Bookbinders' Material Men Meet

Representatives of the Garrett-Buchanan Company, the Molten Paper Company and other paper distributors catering to the bookbinders' and paper rulers' trade participated on Wednesday of last week in the largest meeting of the craft ever held. It took place in the Meridian Club and almost fifty representatives were present of the paper rulers now in the Typothetæ of Philadelphia and prospective members, of whom many already have been enlisted in the membership ranks. The purpose of the meeting was to map out an educational program for the winter season and to bring about a closer relationship between bookbinders, paper rulers and printers on the one hand and paper distributors on the other. Addresses were made by president William Innes, of the Typothetæ of Philadelphia, and J. Frank Redfern, of the Wm. F. Murphy's Sons Company, who made a particular plea for the teaching of more apprentices in the binding and paper ruling crafts.

Thomas W. Price Co. Outing

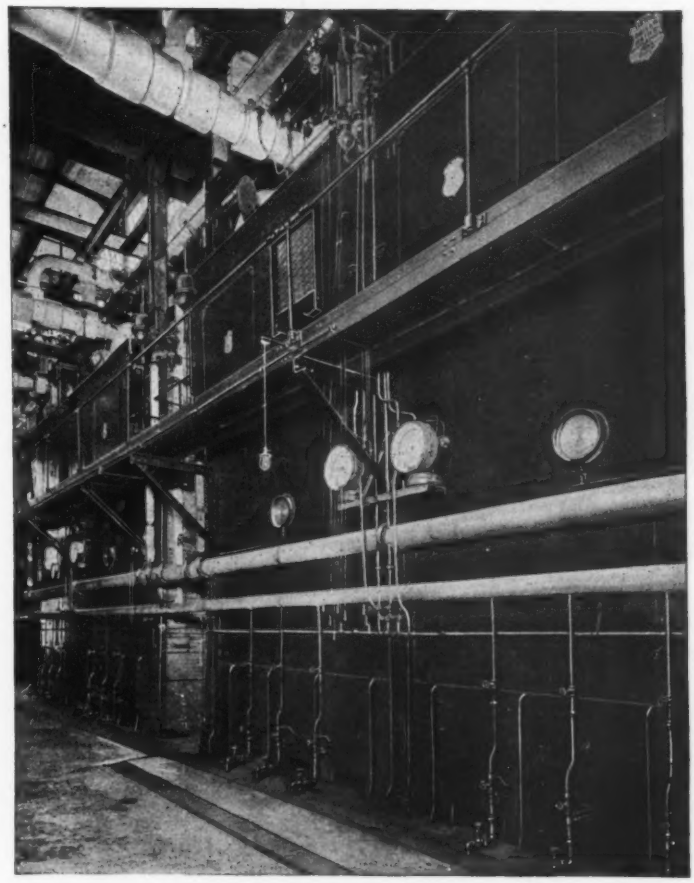
In the olden days, picnics of the Thomas W. Price Company business family were an annual affair, but for the last five years, for various reasons, none have been held until last week, when forty members of the executive, sales and warehouse forces clambered onto the four big delivery trucks of the firm for a journey to Schneider's Farm at Fox Chase. The firm's trade mark is V1C1 and so the picnickers divided themselves up in two ball teams, the V. I.'s and the C. I.'s, and struggled on the diamond for seven innings, the latter winning by a score of seven to six. The broad-jumping contest was won by Frederick Dubbs; the obstacle race by Clifford Young; dart throwing contest by John Baker Tuttle, who with three score and five years to his credit, is the oldest employee of the firm; the shuffle board match by Anthony Mink, and the pool tournament by Max Earnest. Thomas W. Price, Jr., and his son and namesake entertained at luncheon.

General Paper Product's Co. Expands

A two-story, additional building is to be erected on the site of the factory of the General Paper Products Company, 3430-32 Lancaster avenue. The building will be erected in the front plot adjoining the two-story plant which already is established and which was purchased by the company upon its removal to this location from the old quarters at 10th and Diamond streets last August. Built of brick, concrete and structural iron, the new addition will cover a plot of ground 30 x 68 feet and will be erected so that it communicates directly with the present building. The partition between the two buildings will be broken through. With the new plants, a capacity of 50,000 round cartons to be used as containers for drugs, ice cream, coffee, etc., will be manufactured. This will mean an increase of 50 per cent. It is expected to have the new building ready for operation by the middle of November. The company, which was incorporated at the time of its establishment

(*Continued on page 22*)

XUM



Boiler Plant of the King Phillip Mills, Fall River, Mass.

One Fireman Replaces Nine

WHEN these four 435-b.hp. oil-fired HEINE Boilers replaced six 250-hp. water-tube boilers the boiler room force was reduced from nine firemen to one. Of course, a part of this reduction in labor was due to the introduction of oil firing, but a part of it was due also to the extraordinary facility with which the HEINE Boilers are kept in perfect operating condition.

This plant has been operating continuously for approximately two years, carrying an average load of 3500 hp. which means that these boilers have been running continuously at about 200 per cent rating, and yet there has been no sign of deterioration.

This is but one of the many HEINE plants which have demonstrated characteristics considered as highly essential by operators of modern textile mills and industrial plants —namely, continuity of service and superior fuel economy.

If boiler plants are to give perfect satisfaction, they must be designed to meet the peculiar requirements of their location and service. For this reason we maintain an engineering department composed of men having wide practical experience in different lines of boiler application. This service is at the disposal of HEINE customers.

Heine Boiler Company

SAINT LOUIS U. S. A.

2025

PAPER ORDERS INCREASING IN PHILADELPHIA MARKET

(*Continued from page 20*)

in 1917, consists of an organization of which George L. Harnly is president, J. F. Johnson, vice-president and general manager, and E. J. Oliver, secretary and treasurer.

Auer & Twitchell Co. Activities

The Auer & Twitchell Company, 20th street and Erie avenue, is now concentrating its sales effort on the lightweight chip board which it manufactures in the Lehigh Paper Mill of which J. A. Auer, proprietor of the firm, is general manager. The Lehigh Paper Mills are now producing fifteen tons of lightweight chip board per day and five tons of toilets and towellings per day. The Auer & Twitchell Company is also selling to converters the toilets and towellings manufactured at the mills. Capacity operation is maintained in the plant of the Consolidated Tube Company which occupies the recently acquired premises at 20th street and Erie avenue and which is controlled by the Auer & Twitchell Company. A line of tubes is made on the second and third floors of the building for textile, paper mill cores, woolen mill tubes, bleachery and linoleum rolls and electric tubing with a consumption of five tons of paper per day. There recently was organized the Allied Paper Products, Inc., for the purpose of acting as distributor of a specialized line of candle and electric tubes in the fiber and paper. The tubes are to be manufactured by the Auer & Twitchell Company in whose building the Allied Company has taken floor space. The new concern, incorporated under the Delaware laws, is managed by U. W. Sayres, who is also treasurer of the firm.

Thomas F. Pinder to Build

While complete renovation has just been effected at the coating plant conducted for scores of years at 9th and Bailey streets, Camden, by the late E. G. Locke, the present owner, Thomas F. Pinder has in contemplation the erection, at an early date, of a receiving and warehouse building which is to be built on the plot of ground adjoining the factory. A capacity of four hundred reams per day of coated, glazed, plated and embossed papers in the full line of colors and grades is being produced under the new management. The plant has been equipped to manufacture special orders in any shade of colors which may be desired and which are not usually carried in standard grades. The specialized line is an addition to the standard grades. All are being placed on the market under the Pinco papers brand. A. H. Wilkins is in charge of the sales department. Mr. Pinder for many years was superintendent of the coating mill of the Dill & Collins Company and also manager of its Flat Rock Mill.

Harris Kardon Moves Executive Offices

Giving up its office in the Drexel Building, the firm of Harris Kardon has removed its executive offices to the building which it occupies as a bag manufacturing plant at 831-33-35 Ellsworth street. Some time ago the Kardon offices were removed from the building on Second street below Walnut where it outgrew its capacity and a center city office was maintained in the Drexel Building, while the manufacturing end was conducted at the Ellsworth street address. Both are now located at the bag plant, where Mr. Kardon and his son Jacob have engaged solely in the bag manufacturing business, trading under the name of the Central Paper Bag Manufacturing Company. A line of flat and square bags under the Adelphia brand is being made. Although the new plant is larger than the Second and Walnut street location, the firm has outgrown even the increased capacity and is contemplating the purchase of larger manufacturing facilities with a railroad siding where several carloads of bags may be shipped weekly. A modern printing plant has been installed for the printing of bags and is operated in conjunction with automatic manufacturing and feeding devices.

General News of the Trade

In a public spirited movement in which the manufacturing industries located along the upper Schuylkill and particularly the Schuylkill Canal were asked to engage by the municipal authorities, the McDowell Paper Mills, Main and Levering street, closed down on frequent intervals last week during the drought in order that there might be an accumulation of water above Flat Rock Dam drawn on by the city for drinking purposes. Production was speeded up at other times to make up for the shut down. The mills now are operating on a variety of colors and weights in wrappings and grease proof papers and drug bond specialties. Recently there was installed in the plant a new winder made by the Cameron Machine Company, Brooklyn, N. Y. It was installed in the addition just recently completed to the winding and sheeting department.

An additional five ton truck has been added to the delivery service of the Penn Paper and Stock Company, Front and Arch streets, of which William J. McGarrity is proprietor.

Herbert Shontz, formerly engaged in the advertising business, during the week entered the services of the D. L. Ward Company, succeeding T. Ronald Allen who resigned to enter his own business. Mr. Shontz will become active in sales promotion.

H. J. Zimmerman, formerly connected with the sales force of Matthias & Freeman, is now with the Service Paper Company, 701 Chestnut street, looking after the sales for the glazed, bonds and ledger papers covering Pennsylvania. Herman Ahrens, formerly connected with E. J. Keller & Co., New York, has been appointed to take charge of the New York office at 200 Fifth avenue in the Fifth Avenue building of Daniel I. Murphy & Co. of this city, importers of and dealers in foreign and domestic paper stock.

While all the stock of Wilder Brothers has now been removed from the old warehouse, Fifth and Quarry streets, to their big, new building at 12th and Olive streets, and shipment of goods is being made from there, the executive offices will not be installed until the conclusion of this week.

The Union Bag and Paper Company last week removed its stock from smaller quarters at 8 North Front street to much larger ones in the Merchants' Warehousing Company building.

Sylvester S. Garrett, Third and Spruce streets, has installed a 10 horsepower gas engine for his paper slitting and rewinding business.

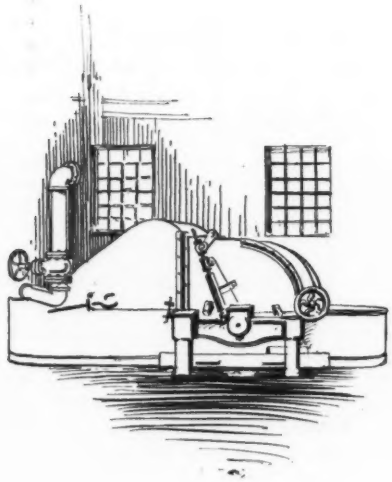
An infallible indication of larger paper consumption by the printing and publishing industry is given in the statistics, made public during the week by the Typothetæ of Philadelphia, of productive work hours for the month of August. These show that, contrary to expectations, August business increased considerably over that of July and also over that of June. From the beginning of the year, and for the first time, the Typothetæ has maintained a monthly statement of productive hours, and arbitrarily fixing the January record at 100, the statistics since then show the following comparison: February, 102; March, 118; April, 101; May, 102; June, 91; July, 83, and August, 95. The September figures have only been received in part, but they indicate a record of over 100.

To Study Use of Rubber Latex in Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 18, 1922.—The research work of the paper section of the Bureau of Standards has been somewhat handicapped during the past weeks by vacations and the large amount of testing on hand. However, it is understood that the problems are progressing satisfactorily and work has been begun on the study of the use of rubber latex in paper.

Have you a beater from which you want better results?



If you have, you will be interested in Leo Shlick's Beater Hood, a simple, inexpensive appliance that can be quickly installed on any Hollander Beater.

We guarantee that Leo Shlick's Beater Hood will

Double the circulation, or Increase the capacity of your beater by at least 25% without using any more power to do it.

Select the beater from which you want better results and we will gladly equip it on a trial basis.

Let us prove to you what Leo Shlick's Beater Hood will do.

BIRD MACHINE COMPANY

South Walpole, Mass.

Western Representative
T. H. Savery, Jr., 1718 Republic Bldg., Chicago, Ill.

4645

Leo Shlick's Beater Hood

PRICE TREND STILL UPWARD IN TORONTO PAPER MARKET

Mills and Dealers Report Continuance of Good Business on All Grades of Paper—Orders More Plentiful Than They Have Been in Some Time—Waste Papers in Strong Position—Pulps Move Well—Demand for Pulp Wood Increases—12,000 Horse Power May Be Employed for Proposed $3,500,000 Pulp and Paper Plant—Laxity of Forest Regulations Precipitates Fire Losses.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 16, 1922.—Business in the paper line continues good and jobbers and mills have been receiving more orders during the past few days than they have for a long time. It is now generally recognized by consumers that the price trend is upwards and this causes freer buying. The increasing cost of pulp, coal, old waste papers and rags has resulted in the mills elevating the figure for the finished product. During the past week there was an advance of 10 per cent on toilets and tissues and the market for these goods is active. The mills are busy and report orders enough ahead to last for some time.

There was also an increase of a quarter of a cent on several lines of wrapping papers, all sharing in the advance with the exception of fiber, No. 1 manila and kraft. The demand for the latter is very strong and a jump from present quotations is predicted. Grey wrap is now quoted at $4.75 in car lots; grey brown at $5.25; white wrap at $5.50; "B" manila at $5.75. No. 1 manila remains at $6.75, fiber at $6.75; kraft, m. f., at $8.00, and kraft, m. g., at $8.15.

The demand for waste paper is very strong and all grades are in good requisition, with stock scarce. Of late there has been an advance on practically every item. New cotton cuttings are having a vigorous call and prices are firm with a tendency to climb.

Pulps Move Actively

The pulp market continues stronger with values firmer and demand more active than it has been for some months. Ground wood pulp is now selling at from thirty to forty dollars and easy bleaching sulphite at sixty dollars per ton. Kraft pulp is active at seventy-five. The news print mills are busy and the advance for the first six months of 1923, on contracts, from $70 to $75 per ton was not altogether unexpected, although there were rumors that $80 might be the figure. The producers are taking a middle course in order to stabilize the market. With a too high priced product it was felt there might be danger of curtailment of consumption and also of an over expansion of the industry.

Better Demand for Pulp Wood

Pulpwood is now being shipped out by several firms on contract for the coming year. One leading operator in Northern Ontario stated this week that the prospects for next season are favorable. With the increased demand for pulpwood, railways ties and a fairly brisk call along other lines, there is every indication of future activity. While prices generally have not been established, it is felt that a reasonable increase over last year should be obtained. There is a scarcity of labor for the woods, which may be somewhat relieved later on as there are large numbers of men working on railroad construction, lake work, etc.

Great Lakes Co. May Erect $3,500,000 Mill

At a recent sitting of the Gregory Commission in Toronto, some interesting facts were brought out in regard to the Nipigon Hydro-Power Development, which has failed to meet its interest charges and its one thousand dollars a day operating deficit under present conditions. The prospects for a comparatively quick reversal in the economic predicament of Nipigon are bright. The Commission has made a seemingly successful effort to reinstitute between the Provincial Hydro-Commission and the Great Lakes Pulp and Paper Company negotiations for the sale of 12,000 horsepower for a projected $3,500,000 pulp and paper plant near the Mission, a Fort William suburb, which is to employ over six hundred men. A deal was terminated over two years ago because the Great Lakes Company considered the proferred power contract to be not mutually enforceable due to the fact that the price quoted was deemed high, and because of one or two minor faults in the contract. M. A. Allsted, head of the Great Lakes Company, admitted recently a desire to get the power which the Hydro-Commission is so anxious to sell and has offered to sign up for $17.50 per horsepower with a mutually enforceable contract. Twelve thousand horsepower will be required by the company. Mr. Allsted announced his willingness to continue negotiations and chief Engineer Gaby of the Hydro-Power Commission said they were eager to get the business.

Need More Stringent Forestry Regulations

It is likely that an outcome of the recent severe forest fires and terrible losses in Northern Ontario will be more stringent regulations governing the burning of clearings by settlers. The practice of withdrawing fire rangers each year on September 15 regardless of weather conditions is regarded as short sighted, for when the fire wardens leave, then settlers start brush burning. The provincial government of Ontario has done much to improve the regulations under which its Crown lands are administered, not only with a view to enlarging the revenues from this source but to aid in preserving the forests and to ensure a continuity of pulpwood supplies. Much, however, still remains to be done if disasters, similar to those which have just ravaged the North country, are to be avoided in the future. Recent rains have put out all the smouldering fires and the work of rebuilding the destroyed towns is now getting under way.

Fort Frances Co. Gets Timber Area

The Shevlin-Clarke Company, of Fort Frances, has successfully tendered on four square miles of timber area in the north of the township of Halkirk, on the north shore, and between Black Sturgeon Lake and Red Gut Bay, in the district of Rainy River. This berth is said to be very advantageously situated for Shevlin-Clarke operations, and is regarded by the Provincial Department as containing splendid timber.

The prices which the company is obligated to pay for standing timber are as follows: Pine, white and red, bonus $14.10, dues $2.50; spruce logs, bonus $7.05, Crown dues, $2; poplar logs, bonus $6.05, Crown dues, $2; jack pine logs, bonus $6.55, Crown dues, $2.50; jack pine ties, bonus 8 cents, Crown dues 10 cents; spruce pulpwood, bonus 80 cents per cord, Crown dues 80 cents per cord; other pulpwood, bonus 30 cents, Crown dues 40 cents per cord; cedar poles, less than 30 inches, bonus 10 cents; Crown dues 25 cents; over 31 inches up to 40, bonus 15 cents, Crown dues 50 cents.

According to the contract terms, the timber is to be removed by April 30, 1924, and is subject to the usual manufacturing restrictions and no export regulations. Timber must be manufactured in Canada. Although the berth is regarded as a very good one, the prices are said to be quite acceptable, from Ontario's standpoint.

Notes and Jottings of the Industry

Percy B. Wilson, vice-president of the Spanish River Pulp and Paper Mills, Sault Ste. Marie, and former president of the Canadian Pulp and Paper Association, has gone on a trip to England.

A charter has been granted to the G. A. Davis Printing Company, Limited, with a capital stock of $40,000, and head office in Toronto, to carry on a general printing, bookbinding, engraving and

(*Continued on page 26*)

XUM

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS.

THE FAMOUS YANKEE

has again been improved
to further increase
its remarkable
production

Ask Us

BELOIT IRON WORKS
BELOIT, WISC.

PRELIMINARY WORK STARTED ON WISCONSIN PAPER MILL

Valley Paper Mills Company's New Plant at Neenah May Be Under Actual Construction in Several Weeks—Company May Change Plans—Nekoosa-Edwards Paper Co. Attract Interest of Trade By Experiments with New Bark Press—T. R. Cuish Invents Improved Couch Roll—Navigation Is Resumed on Fox River—Kimberly-Clark Co. Starts Safety Contest—News of the Wisconsin Trade.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., October 17, 1922.—Excavating for the new plant of the Valley Paper Mills Company at Neenah is under way and it is believed construction work may be started in a few weeks. It is reported that there has been a change in plans and the company will specialize in the manufacture of French folios and opaque papers instead of glassine and grease-proof papers. It is averred that officers of the company have had considerable disagreement with Emil Pohl, whose formulas were to have been used in the manufacture of grease-proof papers and it is not at all certain whether Mr. Pohl will remain with the company. It is said that he has demanded return of his formulæ.

The controversy already has reached the Wisconsin Railroad Commission which issued an order restricting the amount of stock which was to be issued for the formulæ and patents. It is understood that other litigation either is pending or is about to be started.

Experiment with Bark for Fuel

Wisconsin paper mill men are showing considerable interest in experiments conducted at the Port Edwards mill of the Nekoosa-Edwards Paper Company with a machine invented by M. J. Powers, of Nekoosa, to press moisture out of pulpwood bark so that it can be used for fuel. Results of the experiments were reported at convention of the Technical Association of the Pulp and Paper Industry at Detroit.

It is believed the tests showed the machine to be highly satisfactory and that it represents the solution of the problem of disposing of the bark. Not many years ago the bark was merely dumped in the rivers and floated away, but this practice now is prohibited by the State because of alleged pollution of the streams and destruction of fish.

Mr. Powers' device is known as a plunger press in which a huge plunger compresses the moisture from successive loads of bark. Stays maintain the pressure while new bark is added so the bark is under compression long enough to permit the water to ooze out. Bark from fifteen or twenty cords of wood can be put through the machine in an hour, it is said. The apparatus is about 17½ feet long, 5 feet wide and 5 feet high and weighs 7½ tons. The plunger has a stroke of 15 inches. As the bark is put through the machine it is shredded by huge knives so that knots, pieces of wood and other hard objects will not interfere with action of the plunger.

Inaugurate Handicap Safety Contest

A safety contest between the Kimberly, Niagara and Niagara Falls Mills of the Kimberly-Clark Company started at 7 o'clock Monday morning and will continue until 6 o'clock on the evening of December 16. A pennant will be given to the winning mill and prizes to individuals in the plant. Each mill is to be given 1,000 points at the start of the contest. Deductions for accidents and time lost will be as follows: Kimberly, 20 points for each accident and 3 points for each day lost because of accidents; Niagara, 27 points for each accident and 4 points for each day lost; Niagara Falls, 40 points for each accident and 6 points for each day lost. The mill finishing the contest with the largest number of points will be the winner. Deductions are based on the number of men employed in the plants.

Invents New Couch Roll

Officials of the Northern Paper Mills, Green Bay, are studying plans for a new couch roll invented by T. R. Cuish, Green Bay, a machine boss in the mill. Mr. Cuish claims his invention is a great improvement over couch rolls now in use and will effect big savings because it is easier on wires and felts of paper machines. It is much lighter than rolls in use now, he said. Mr. Cuish spent 11 years perfecting the device. The inventor is planning to sell the patent outright but if that cannot be done he will organize a company to manufacture the rolls.

To Resume Fox River Navigation

Navigation on the Fox river, interrupted when the locks at Little Rapids were washed out in June, will be resumed in a few days and papermill owners are hopeful of moving considerable coal to their yards from the docks in Green Bay before navigation closes. It is estimated the destruction of the docks caused a loss of $1,000,000, considering the cost of making the repairs, loss to coal transportation companies and to paper mills because of inability to obtain coal by water.

Wisconsin Trade Jottings

William C. Wing, president of the Fox River Paper Company, has purchased a home in Neenah. He expects to move from Appleton within 60 days.

L. A. Alsted, president of the Combined Locks Paper Company, who formerly lived in Milwaukee, has purchased a home in Appleton.

Mrs. I. P. Witter, wife of the treasurer of the Consolidated Water Power and Paper Company, Wisconsin Rapids, has been re-elected president of the State Conference of Social Work. The convention was held in Madison.

Parker K. Baird, technical engineer for Inland Empire Paper Company, Millwood, Wash., has been appointed chemist in forest products with Forest Products Laboratory, Madison, Wis. Mr. Baird has just moved his family to Madison and is settled in his new position.

PRICES ADVANCE IN TORONTO

(*Continued from page 24*)

publishing business. George A. Davis is at the head of the new organization.

W. H. Sherriff, of the Hodge-Sherriff Paper Company, Toronto, left this week on an extended business trip throughout the western provinces. He will go as far as Vancouver and be absent for a month.

Miss Alexandra Buntin, daughter of Alex. Buntin, head of Buntin, Reid Company, wholesale paper dealers, Toronto, was married last week to John A. Boyd at St. Paul's Anglican church, Toronto.

Wm. A. Publow, secretary of the Butterick Publishing Company, died recently in Brockville, Ont., at the age of sixty-five. He was for many years with the firm and was widely known in the paper trade.

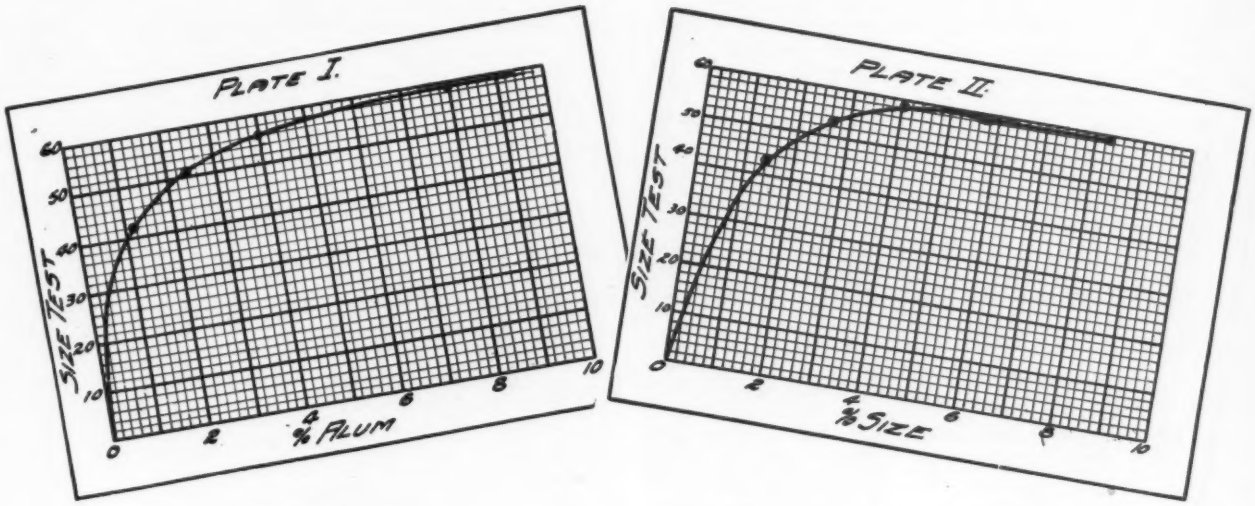
William Gorman, of Montreal, eastern representative of the Provincial Paper Mills Company, spent a few days in Toronto last week and reports the paper trade in the East as steadily improving.

Efforts are being made to settle the commercial printers' strike which has been in progress in Toronto for the past year and a half. Several conferences have been held during the last few days.

Nugget Publishers, Limited, with head office in North Bay and a capital of $100,000, have been incorporated to engage in printing, publishing, lithographing, engraving and other business.

The Parkdale Paper and Twine Company, 1216 Dundas street West, Toronto, has sold its stock and gone out of business.

XUM



These diagrams are actual tests. They show that, after a certain point, it is impossible to increase the size in paper. Adding more material is merely a waste.

Do You Know When to Stop Adding Size and Alum?

There is only one method of accurately determining when the point of saturation is reached—the test given by the Valley Size Tester.

"Accurate," "Easy to Operate," "Resulting in a real saving in size and alum," those are the written opinions of the users of some of these remarkable instruments. It will be well worth your while to get full particulars regarding it.

Write for them immediately.

Valley Iron Works Co.

Plant: Appleton, Wis.

New York Office: 350 Madison Ave.

THE NEW MOORE BLEEDER TYPE TURBINE

Increasing competition demands lower manufacturing and operating costs, and better steam economy in every industrial plant. Heretofore, as would be most natural, especial study has centralized upon the large power installations and the smaller plant has not made the same progress toward economical operation that has been perfected in the plant many times larger.

In line, however, with a desire to decrease operating costs in the average size industrial power plant, the Moore Bleeder Type Turbine has been thoroughly perfected and placed upon the market. It fulfills a longfelt want wherever steam, after generating power, is used for heating buildings, heating feed water for boilers, manufacturing and cooking. It solves in a satisfactory manner the problem of heat balance and acts as a reducing valve for converting high pressure steam to a lower desired pressure, meanwhile extracting the energy due to the heat drop.

It is simple in design, easy to "get at" and automatically regulates perfectly, either for varying power conditions or fluctuating demands for exhaust steam. The efficiencies obtained have proven exceedingly gratifying. One operator, for instance, who had bought outside power at $600 per month, yet who had generated steam in his boilers at 125 lbs. per sq. in. and reduced it to 40 lbs. per sq. in. through a reducing valve, for cooking purpose, found that a Moore Bleeder Turbine could take the place of the reducing valve, generate his power requirements and fulfill his demand for exhaust steam. He saved $600 per month, which in less than a year paid for the turbo-generator. There are doubtless many operators today who could follow the same procedure with resulting greater efficiencies and lower operating costs.

Design and Operation

The general design of the Moore Bleeder Type is that of a multistage turbine, with one or two velocity stages followed by a number of pressure stages. Between the velocity stage and pressure stage is the bleeder chamber "A"—Fig. 2, which connects to the heating or cooking system. The cylindrical bleeder valve allows excess steam to enter chamber "B," from which point it flows through the pressure wheels to the condenser.

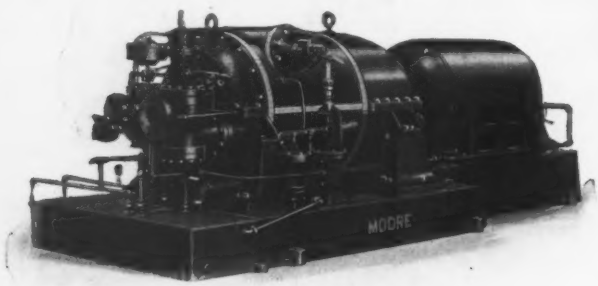


FIG. 1—BLEEDER TURBINE FROM BLEEDER VALVE SIDE

An oil relay governor controls the turbine speed. A cylindrical bleeder valve control the steam flow rate to the bleeder exhaust.

The operation of the cylindrical bleeder valve is well illustrated in Fig. 3. Steam from the bleeder chamber "A" is piped to a diaphragm chamber, beneath which is a helical compression spring, the upward thrust of which is controlled by an adjusting nut. The spring is set to maintain a desired back pressure. Supposing the bleeder pressure should rise above that pressure. The excessive pressure compresses the diaphragm and fulcrum point 1 (Fig. 3). This lowers pivoted arm 2, which, through sliding pivot point 4 lowers fulcrum point 3, forming as it does the upper part of the oil relay valve. The lower oil port immediately admits oil under pressure above piston 5. As the piston descends it opens the bleeder valve through pin connection at 6. Steam pressure in the bleeder chamber immediately drops and point 1 rises to its normal position. The descent of piston 5 raises fulcrum point 8 through the arm pivoted at 7 and point 3 with the oil relay valve is raised to neutral and oil port opening to the upper side of piston 5 is closed. The

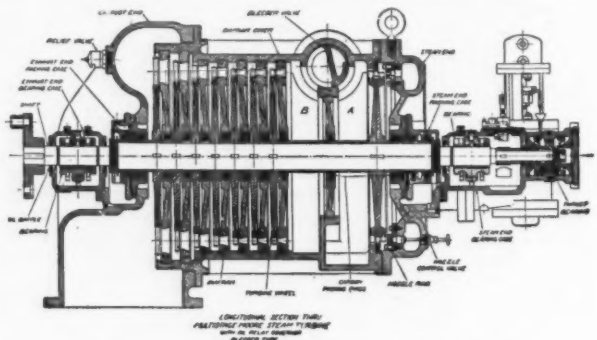


FIG. 2—CROSS SECTION OF MOORE BLEEDER TURBINE

reverse action for the entire control takes place in case pressure in the bleeder chamber falls. In this event the bleeder valve closes.

When holes B and C (Fig. 3) are brought in line and pinned through with steel pin A, the bleeder valve is locked in open position and the turbine operates straight condensing.

Since the bleeder type serves as a combination non-condensing high pressure condensing turbine, it effects a close heat balance, even where there are only one or two main units. The flow of steam to a heating system being determined by the pressure of that system, the load to be carried by the high and low pressure

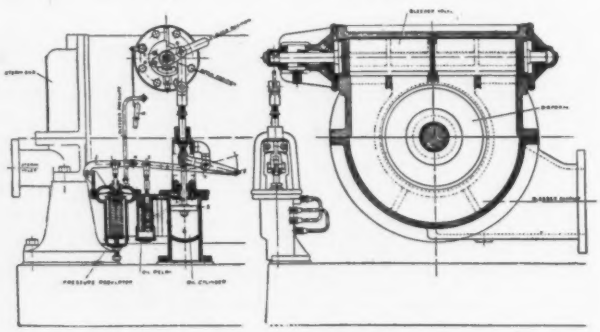


FIG. 3—CROSS SECTION OF BLEEDER VALVE MECHANISM

elements, in order to result in the proper heat balance, is automatically determined by the cylindrical bleeder valve which regulates the flow of low pressure steam to the heating system. The oil relay governor automatically regulates the flow of high pressure steam to the high pressure stages to meet changing load conditions Hence with these two simple and positive equalizers a perfect balance is automatically maintained.

Important Claims

Among the claims for the Moore Bleeder Turbine, with its cylindrical valve, may be mentioned:

(*Continued on page* 30)

THE APPLETON MACHINE COMPANY

HORIZONTAL WOOD SPLITTERS
CENTRIFUGAL PUMPS
CYLINDER MOULDS
JORDAN ENGINES
WET MACHINES
FLAT SCREENS
AGITATORS
CHIPPERS
DECKERS
ROLLS

APPLETON WISCONSIN

"AMERICAN"

PAPER MAKERS TWINE TUBE ROPE
WALL PAPER TWINE HAY ROPE
FINE AND COARSE POLISHED TWINES
"AMERICAN" BRAND MANILA ROPE
"AMERICAN" BRAND TRANSMISSION ROPE

The name "AMERICAN" as applied to cordage means "more value in every way." Send for copy of our General Catalogue, Prices and samples. Address Department M.

Largest Makers of Commercial Twines and Rope in the World

AMERICAN MANUFACTURING CO.
NOBLE AND WEST STREETS, BROOKLYN, NEW YORK CITY

CORDAGE

Obituary

Sidney H. Hanson

The announcement of the death of Sidney H. Hanson, export manager of Maurice O'Meara Company, manufacturers of paper and dealers in mill supplies, of 448-50 Pearl street, New York, came as a distinct shock to his many friends in the paper trade, both in this country and abroad. Cancer of the liver was given as the direct cause of Mr. Hanson's death at the Memorial Hospital of New York last Sunday, October 15.

Although he had been suffering from hook worm, believed to have been contracted in South America, for the last year or two, doctors pronounced him cured of this disease. His health continuing to fail, an examination disclosed the illness that eventually led to his death despite the application of the radium treatment and all others known to science.

Holding a responsible position with the Maurice O'Meara Company, Mr. Hanson was well known among mill men throughout the country. He was in the employ of this company for the past ten years, during the last three of which he had traveled in Latin America, later assuming charge of the export department.

Edward M. Adams

Stricken with paralysis, Edward M. Adams, 68, of the Pulp and Paper Trading Company, 21 East Forty-fifth street, died last Friday in his home at 423 West 120th street. Mr. Adams was taken sick six weeks ago, and hope for his recovery had been abandoned. He had been connected with the Pulp and Paper Trading Company for the last twenty years. He was born in New Marlborough, Mass., the son of Chauncey Adams, who was engaged in the paper business in Unionville, Conn., for many years.

Mr. Adams was a member of the Sons of the American Revolution, the Society of Mayflower Descendants and the Society of Colonial Wars. He leaves his widow, Sarah Adams, a son Edward M. Adams, Jr., who lives in Quebec, and his daughter, Mrs. K. Crooks, of Northampton, Mass. Funeral services were held at Campbell's Funeral Church, Broadway and Sixty-sixth street, Saturday afternoon at 3 o'clock and the body was sent to Unionville, Conn., Monday for burial.

Kalamazoo Paper Co. Has Garden Contest

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., October 16, 1922.—The value of the garden is being practically demonstrated by the Kalamazoo Paper Company, through the inauguration of a garden contest, with a fine list of prizes to be won by the successful contestants. The enterprise was started this year and there have been over 30 competitors. They raised either flowers or vegetables, in some cases both. Men and women have entered the competition and their efforts have been rewarded by some of the finest small garden tracts ever seen in Kalamazoo. Harold P. Gilkey, Prospect avenue, has given freely of his time to promote this enterprise and act as judge.

The Kalamazoo Paper Company will stage its big holiday party early in December and at that time prizes will be awarded to the garden competitors. These prizes will be in the form of cash and subscriptions to garden magazines.

It is believed that the efforts of the Kalamazoo Paper Company will result in the formation of another permanent garden club in Kalamazoo. The Club of Little Gardens has recognized the efforts of those in the competition, inviting them to exhibit spring flowers, bulbs, annuals and perennials at the show to be given in the spring.

Eagle Plant Sold at Auction

[FROM OUR REGULAR CORRESPONDENT.]

RICHMOND, Va., October 16, 1922.—As advertised, the auction sale of the Eagle Paper Company's complete plant took place on the premises in Richmond, Va., on October 12, 1922. Contrary to the expectations of the local creditors the proceeds were very small.

The plant was first auctioned off by individual items bringing in only a total of $11,434 for the contents of the office, warehouse, bundling department, machine shop and 50 bag machines. The outstanding feature was the comparatively high prices offered for the Potdevin machines, one of which, originally sold in 1918 to Cushnoc Paper Company brought in $1,500. A recent and very complete Cincinnati milling machine and a Seybold paper cutter brought $1,250 and $550 respectively.

At the conclusion of the itemized sale, the auctioneer put the plant up as a whole, procuring bids from only two of those present, Messrs. A. H. Cohen, president of the Republic Bag & Paper Company, of Long Island City, and Mr. MacIlvaine, president of the Columbia Bag Company, of Baltimore. The plant was knocked down to Mr. Cohen for $17,000 who will become the owner provided the sale is confirmed by the District Court of the United States for the Eastern District of Virginia. However, it is currently rumored that other interests not present at the sale will make a substantial upset bid which will doubtless receive the serious consideration of the court in view of the fact that the proceeds are far from sufficient to take care of the creditors, including the federal, state and city governments who claim about $20,000 for unpaid taxes.

NEW MOORE TURBINE

(*Continued from page 28*)

1. The cylindrical type of valve gives a wide unobstructed opening with minimum pressure drop from "A" to "B." (A drop between these two points means loss in efficiency.)

2. The weight of the valve, together with the thrust due to steam pressure, is carried on two large bearings, one at either end. Very little effort is required to turn the valve.

3. The bleeder valve clearance is greater than the end bearing clearances. This not only makes for easy rotation of the valve, but likewise allows a small quantity of high pressure steam to leak past the valve into the low pressure stage. This prevents high temperatures which would occur due to windage friction of the rotating elements in the surrounding thinned out steam.

4. The entire bleeder valve can be quickly removed without disturbing or dismantling the casing.

5. The valve forms part of the turbine casing thereby presenting a compact appearance.

6. The valve arrangement has only a few parts and requires little attention.

Extremely gratifying economies have been obtained with the Moore Bleeder Turbine. It is built for initial pressures as low as 100 lbs. per sq. in. and bleeder pressure as high as 40 lbs. per sq. in.

Will Start New Paper Company

[FROM OUR REGULAR CORRESPONDENT]

POUGHKEEPSIE, N. Y., October 16, 1922.—John Boice who for 22 years has been employed by Forsythe Davis, Inc., in Kingston and this city, the past seven years being connected with the Poughkeepsie branch as general manager, has resigned and will start a wholesale paper and stationery business in this city at an early date.

Port Arthur Man Gets Pulpwood Limit

A. Paju, of Port Arthur, has been awarded the contract for the pulp wood limit in the Thunder Bay district recently advertised for sale by the Ontario Government. He secures the timber rights on one lot situated one-half in concession seven, and one-half in concession eight in Nipigon Township, the conditions of the sale obligating him to complete his operations by April 30, 1923.

XUM

"There is a DIFFERENCE"

"At one time, all pipe was **just pipe** to me. The less I had to pay for it, the more it pleased me. But one day some kind friend started to talk to me about pipe. He knew pipe—I didn't. He told me the difference between ordinary steel pipe and Genuine Wrought Iron Pipe. He showed me pictures of the structure of steel and Genuine Wrought Iron. He explained that the black lines in the Genuine Wrought Iron are the walls of siliceous slag which make this pipe resist corrosion, a protection steel does not have.

"His argument appealed to me, so I tried out Reading Genuine Wrought Iron Pipe. After several years I realized what a saving I had made through its use. I know now after many more years of service—free from pipe replacements which are costly and hold up production—that there is a difference in pipe, **and a big difference.** That's why I now always insist on the use of Reading Genuine Wrought Iron Pipe for all installations in my mill."

Write for the bulletins which will show you the big difference.

READING IRON COMPANY
Reading, Pennsylvania

Boston	**Baltimore**	**Chicago**
New York	**Pittsburgh**	**Fort Worth**
Philadelphia	**Cincinnati**	**Los Angeles**

The World's Largest Makers of Genuine Wrought Iron Pipe

READING
GUARANTEED GENUINE
WROUGHT IRON PIPE

REG. U.S. PAT. OFF.
Vortex
DRINKING CUP
(Patented)
June 20, 1916, Reissued June 13, 1922; March 26, 1918; April 18, 1922; Other Patents Pending
• • •
Canadian and Other Foreign Patents Granted and Pending
"One who manufactures, who uses, or who sells a device that infringes a patent is equally an infringer."
Look for our trade-mark "VORTEX" on all cartons and tubes

A Market of Millions

The demand for Vortex drinking cups is nation wide. Each day millions are used.

Vortex has won leadership solely because of supreme merit.

They are the original conical cups—strong, convenient, odorless, tasteless, sanitary and the acme of quality.

The low price of Vortex is an important factor in their rapid sale to banks, offices, factories, stores and wherever public drinking places are established.

Write us for prices and particulars today.

THE VORTEX MFG. CO.
421-431 N. Western Avenue
Chicago, Ill.

Canadian Wm. A. Rogers, Ltd., Toronto, Manufacturers and Distributors for Canada

97

Vortex
Drinking Cups

New York Trade Jottings

Edward E. Saunders, plant engineer of the Inland Empire Paper Company, of Millwood, Wash., was accompanied by his bride on a visit to New York last week.

* * *

The New York *Times* of Sunday, October 15, printed for the first time a complete list of tariff rates under both the new and old schedule. The Paper and Pulp Tariff was included on Page 4 Section XX.

* * *

"Quick Collections Without Dunning," is the title of an article written by Spencer C. Gunn, credit manager of the A. P. W. Paper Company, and appearing in the November issue of *System*, the Magazine of Business, New York.

* * *

Stonewall Linen Ledger is one of the recent additions to the line of fine papers handled by the Urquhart Paper Company, 22 Reade street, New York. This watermarked sheet is manufactured by the Neenah Paper Company, Neenah, Wis.

* * *

The Hamersley Manufacturing Company, 25 Park place, New York, is directing a campaign of advertising through various womens' magazines to increase the use of waxed paper in the home. Hanff-Metzer, Inc., New York advertising agency, is directing this campaign.

* * *

E. I. du Pont de Nemours & Co., 120 Broadway, New York, have developed a fast pink dye which may be used for coloring paper. The new dye, which is called Pontamine Fast Pink G, was imported in fairly large quantities before the war and since has been brought in under license.

* * *

Kelly & Co., Inc., of Newark, N. J., are discontinuing their New York office which has been located in the Fifth Avenue Building. In the future, all correspondence is to be addressed to their main office and warehouse, at 780 Frelinghuysen avenue, Newark, N. J. Telephone Terrace 2970-71.

* * *

L. Glickman & Co., of 133 Greene street, New York, manufacturers of paper bags, last week purchased the building located at 503 Johnson avenue, Brooklyn, for $150,000 cash. Thoens and Flaunlacher, Inc., sold the edifice for the Hemmerdinger Estate Corporation, manufacturers of cotton waste.

* * *

The American Paper Mills Corporation is now located in its efficiently equipped offices and warehouse at Eleventh avenue and Twenty-seventh street, New York, where with a direct freight terminal and railroad sidings right in their building they are enabled to handle paper with a minimum amount of overhead. The new phone number is Chelsea 10,300.

* * *

The Allied Paper Mills, Inc., New York, are distributing to paper dealers a box, which contains specimens of their grades of paper which are stocked in their New York warehouse. These samples are in practical form, as they are 11 x 17 in size, put up flat, unmarked, in folders, each of the latter being printed to indicate the quality and basis of weight paper it contains.

* * *

The Merchants' Association of New York, 233 Broadway, has just issued its year book for 1922. The volume, consisting of 334 pages, is handsomely bound, well edited, and information is readily accessible. Nearly 150 paper concerns of New York City, members of the Association, are listed on pages 270, 271 and 272, together with the company representative and the lines handled by each.

* * *

John R. Ryan, formerly manager of the paper department of the American Woodpulp Corporation, 347 Madison avenue, New York, is now located with the Newsprint Paper Corporation. Mr. Ryan has an extensive knowledge of the importation of news print from Sweden, and in the past has acted in the capacity of selling agent for Swedish mills which are now controlled by the News Print Paper Corporation.

* * *

Philip T. Dodge, president of the International Paper Company, now in Europe looking over the foreign paper situation and visiting the European plants of the Mergenthaler Linotype Company, of which he is also president, is expected to return to New York the first week in November. The company will probably defer the announcement of a contract price for news print for 1923 delivery until after the return of Mr. Dodge and Allen Curtis, vice-president of the company and head of the department of manufactures, who is accompanying him.

* * *

The New York *Wall Street Journal*, under date of October 12, printed a story with the head: "American Writing Paper is Now Making Money." The following is from a recent survey of the fine paper situation coming from the company: Reports from several printing centers indicate greater activity than has been experienced in many months. With labor troubles practically disposed of, it is reasonable to expect a speedy return to normal business conditions. All available statistics seem to point to a period of prosperity and the settlement of the coal strikes and the railroad shopmen's strike has already resulted in considerable increase in business in almost every industry. It is, therefore, reasonable to assume that the printing industry is headed for a period of prosperity which should be even more marked because of the big movements which are being conducted toward elimination of waste and adoption of definite standards in paper, printing equipment and finished product."

New Issue by Belgo Company

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., October 16, 1922.—The reorganization of the Belgo Paper Company, Limited, has been completed and a public offering is now announced. The issue is being offered at par and accrued interest to yield 6 per cent.

The Belgo Paper Company, Limited, whose plant is located at Shawinigan Falls, Que., has been incorporated to acquire the undertaking of the Belgian Industrial Company, Limited, which is successor to the Belgo-Canadian Pulp and Paper Company. The business was originally established in 1900, and has been in successful and continuous operation since that time. Bonds will be secured by first mortgage and charge on all fixed assets and properties of the company now owned and hereafter acquired by and by a floating charge on all other assets of the company. Annual cumulative sinking fund of 2 per cent, commencing in 1923, will, it is estimated, retire the entire issue before maturity. Timber areas consist of 1,723 square miles of leasehold timber limits and 15,000 acres of freehold lands estimated to contain over 6,000,000 cords of pulpwood. The company owns a thoroughly modern news print paper mill at Shawinigan Falls. This location is most advantageous as regards labor supply and power, and is in convenient proximity to the company's limits. The annual output is 65,000 tons news print paper, now being increased to 105,000 tons annually. The company also operates at Shawinigan Falls, a sawmill with a capacity of 10,000,000 feet b. m. lumber annually. This mill enables the company to utilize to the best advantage such pine and extra large spruce as is cut on its limits. Plant and property valuation—$18,000,000 against $3,000,000 of bonds authorized. The average annual net earnings available for interest charges on this issue of bonds, for the five years ended December 31, 1921, have been several times the amount required. It is estimated that net earnings for 1923, available for interest on this issue of bonds will be over ten times the amount required.

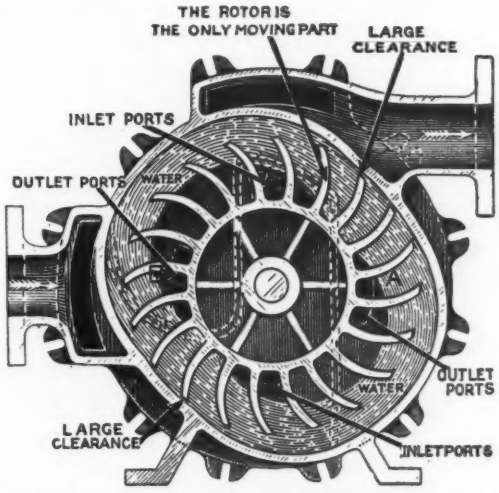
THE HYTOR VACUUM PUMP

FOR FLAT BOX SERVICE

Vacuum Produced Absolutely Without Pulsation

No Vibration

Saves Wires



Only One Moving Part

No Rods, Pistons, Crank Shafts Loose Moving Parts and No Gears

No Expert Attendance

Western Representative
T. H. SAVERY, Jr.
1718 Republic Bldg., Chicago, Ill.

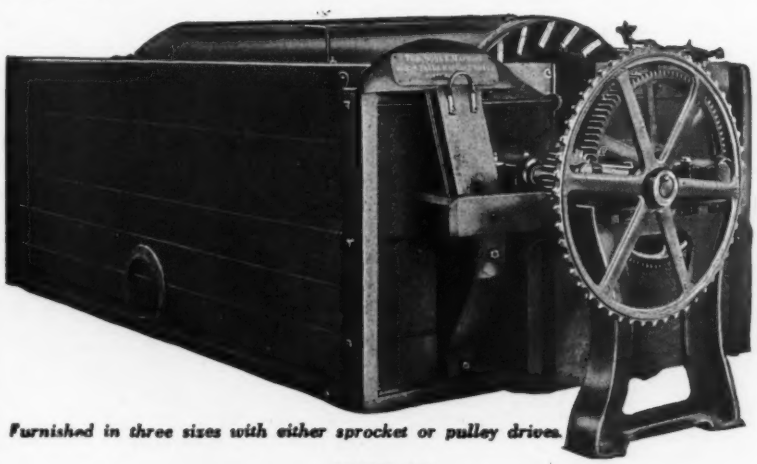
THE NASH ENGINEERING CO.
WILSON POINT ROAD
SOUTH NORWALK, CONN.

New England Representative
G. H. GLEASON
185 Devonshire Street Boston, Mass.

THE WOOD'S MACHINE

Distinctive performance and intensified confidence in this machine as a Pulp Thickener, Save-All, Washer or Water Filter insure success in its building.

On the market but a few years, our installations number more than **Eighty-five.** **Twenty-nine** sold the past year.



Furnished in three sizes with either sprocket or pulley drives.

MADE BY
GLENS FALLS MACHINE WORKS
GLENS FALLS, N. Y.
Try our Split Cams for your Flat Screens

SIMPLICITY, in cylinder and vat construction, operation automatic, and without couch roll, doctor or any complicated moving parts.

DEPENDABILITY, in its simple revolving cylinder only, with nothing to get out of order, requiring little attention, and having a patented principle of maintaining wires always clean, insuring continuous performance.

PRODUCTIVENESS, enormous, through clean wires, large screening surface, patented unique method of discharge and freedom from shut-downs.

DURABILITY, by rigid construction, ample bearing surfaces, nothing to injure wires and highest grade materials.

All these enhance its value and involve upon you the duty of investigation.

XUM

BIDS AND AWARDS FOR GOVERNMENT PAPER

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 18, 1922.—The purchasing officer of the Government Printing Office has received the following bids:

19,050 lbs. single-coated both sides book paper, 41 x 52 and 24 x 38: Dobler & Mudge, $.091; Kalamazoo Paper Company, $.09; Bryant Paper Company, $.09; Old Dominion Paper Company, $.1099; Whitaker Paper Company, $.089; Mathers-Lamm Paper Company, $.1075 and $.117.

40,400 lbs. 21 x 32 and 25 x 38 wood manila paper: Dobler & Mudge, $.062 per lb.; Samuel S. Alcorn, $.0575; Wilkinson Bros. & Co., $.0549; Old Dominion Paper Company, $.0699; R. P. Andrews Paper Company, $.0577; Graham Paper Company, $.06; Reese & Reese, $.05625, and the Whitaker Paper Company, $.056.

56,000 lbs. white writing paper, 18 x 23-inch rolls: Old Dominion Paper Company, at $.08839; Dobler & Mudge, $.10; R. P. Andrews Paper Company, $.1035; Maurice O'Meara Company, $.1049.

10,400 lbs. 26½ x 41—104 India tint cover paper: Reese & Reese, $.117 per lb.; Dobler & Mudge, $.099; Whitaker Paper Company, $.102.

37,300 lbs. various sizes rope manila paper, 11½-inch rolls: Maurice O'Meara Company, $.0958 per lb.; R. P. Andrews Paper Company, $.0755; Republic Bag and Paper Company, $.1165; Whitaker Paper Company, $.1077.

21,900 lbs. S. & S. C. white printing paper, 32 x 48—73 lbs.: Dobler & Mudge, $.0775 per lb.: Old Dominion Paper Company, $.08194; Bryant Paper Company, $.0737; Kalamazoo Paper Company, $.075.

38,500 lbs. 38 x 48—77 white M. F. printing paper: Bryant Paper Company, at $.0985 per lb.; Old Dominion Paper Company, $.1348; Reese & Reese, $.0849.

50,000 lbs. 26 x 38—No. 50 chip board: Mathers-Lamm Paper Company, $55.50 per ton; B. F. Bond Paper Company, $59.00; Reese & Reese, $57.66; Whitaker Paper Co., $59.97; C. L. La Boiteaux Company, $56.80; United Paperboard Company, $55.00; R. P. Andrews Paper Company, $58.20; Dobler & Mudge, $58.35; Geo. W. Millar & Co., Inc., $61.75.

160,000 lbs. 25 x 302—No. 2 quality binders' board: Ingalls & Co., $.035; Kerr Paper Mill Company, $.04; R. P. Andrews Paper Company, $.04; Dobler & Mudge, $.0395; Republic Bag and Paper Company, $.04075; Denison-Pratt Paper Company, $.0554; Whitaker Paper Company, $.04037.

Bids will be opened on October 20 for 2,000 lbs. 24x36—90 back lining paper for case-making machines.

The purchasing officer of the Government Printing Office will open bids on October 23 for the following:

38,000 lbs. (500 reams) 38 x 48—No. 1 white machine finish printing paper. 1,810 lbs. (10 reams) 22½ x 28½—181 white index bristol board.

The Ætna Paper Company has been awarded thè contract by the Purchasing Officer of the Government Printing Office for furnishing 2,550 pounds (100 reams) of 17 x 28—25½ pounds No. 20 green glazed bond paper at $.1706 per pound, bids for which were opened on October 6.

The Whitaker Paper Company will furnish 1,000,000 pounds of United States postal card cream bristol board in 44½-inch rolls at .0734 cents per pound. Wilkinson Brothers Company will furnish 40,000 pounds of high finish sulphite manila paper in 18-inch rolls at $.059 per pound, and Samuel S. Alcorn Company will furnish 66,800 pounds (500 reams) of high finish sulphite manila paper of various sizes at $.0615 per pound, and the Bryant Paper Company will furnish 5,000 pounds (100 reams) of No. 1 25 x 38—50 salmon machine finish printing paper at $.0775 per pound. Bids for these items were opened on September 29.

The Kalamazoo Paper Company will furnish 23,750 pounds of white machine finish printing paper at $.07 per pound, bids for which were opened on September 20.

Boston Paper Market and News of the Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 17, 1922.—Paper distributors in Boston and vicinity are firm in their belief that paper prices, now on the upward trend, will remain up for some time to come and as a result they are advising their customers to stock up as much as they are able to, considering present finances. In this respect they are running up against some opposition because they find it hard to convince their customers that they, the distributors, are not to blame for the present high prices.

The increased shipment of coal into New England, both soft and anthracite, is helping materially to relieve the situation for the paper mills, the distributors state. Another factor which is acting favorably on the paper merchants is the decrease in unemployment. With the bettering of transportation facilities the paper mill men and distributors will all feel relieved.

Boston merchants report an unusually active condition in the news print market because of the fact that many of the metropolitan newspapers are running from thirty-six to forty-eight pages daily, more in number than they formerly ran on Sundays. As a consequence the news print mills have been working to capacity in an effort to fill the demand.

Up to the first of September no authentic statement regarding possible price of newsprint was given out by the mills, the Boston merchants state. News print, sheets, has advanced a quarter of a cent and colored news print has gone up but the price on rolls remains the same as it was last month.

Paper Companies Short of Lumbermen

The International Paper Company is advertising in Boston for men for its lumber camps in Maine, New Hampshire and Vermont. It is asking for more than 500 men. Other paper companies taking on men for the winter season are the Holingsworth and Whitney Company and the Oxford Paper Company, both for work in Maine, day cutting or cord cutting; and the Great Northern Paper Company is still hiring men to cut pulpwood in Maine.

Receiver Appointed for Burnside Mills

Word has been received in Boston of the appointment of a receiver for the Burnside Tissue Mills, Inc., of East Hartford, Conn., which have been operating on an outstanding capital of $150,000. Seth Hadfield has been apppointed by the court as receiver and states that because of a fairly large number of uncompleted contracts now on hand he believes that the mills can be run on a profitable basis.

Claims are made that the corporation has assets of $400,000 and liabilities of about $300,000 and that it is solvent. The petition of R. S. Peck & Co., Inc., of Hartford, Conn., was responsible for the appointment of the receiver. The firm is a creditor to the amount of $17,252. N. G. Read, of Holyoke, is manager and president of the company. About seventy-five hands are employed at the mills which make tissue and crêpe paper.

Commerce Commission Suspends Schedules

[FROM OUR REGULAR CORRESPONDENT.]

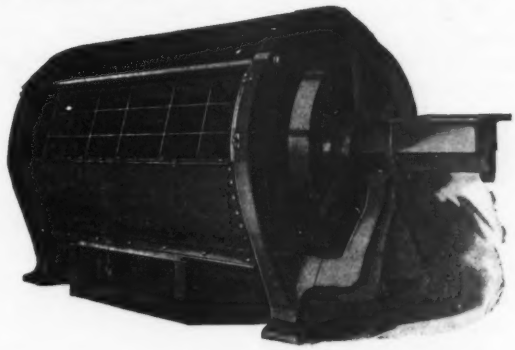
WASHINGTON, D. C., October 18, 1922.—The Interstate Commerce Commission has suspended until February 12 the operation of certain schedules. The suspended schedules propose increases in rates on building and roofing paper in carloads from Cincinnati, Lockland, Carthage, Ohio, and other points in Ohio and Indiana, to St. Paul and Duluth, Minn.

XUM

"IMPCO" TAILING SCREENER

FOR SCREENING GROUND WOOD TAILINGS

Very Low Power and Upkeep Expense



Delivers Rejections Free from Good Stock

ANOTHER UNIT OF OUR CLOSED SYSTEM FOR PULP SCREENING

WRITE FOR FULL DETAILS *CORRESPONDENCE A PLEASURE*

IMPROVED PAPER MACHINERY CO. **Nashua, N. H.**

SHERBROOKE MACHINERY CO., LIMITED, SHERBROOKE, CANADA

Let Them Drink to your business health in cups you sell

each drink a cup—each cup a sale for you and at lowest cost of any cup on the market.

At such prices SALES RESISTANCE IS NEGLIGIBLE and our direct advertising assistance in your city will get immediate results as it is now doing in many cities.

Burt's Paper Drinking Cups are made of fine white paper, without wax to make drinks taste, and are reinforced so holders are not necessary. They are kept under glass and cannot be wasted or soiled before use.

Cups retail at one fourth cent—dispensers at five dollars.

F. N. Burt Company, Ltd.

Paper Cup Division

Buffalo, N. Y.

CORRESPONDENCE COURSES ON WOOD PULP

The University Extension Division of the University of Wisconsin announces five new correspondence-study courses on the preparation and treatment of pulp. These courses are offered in cooperation with the United States Forest Products Laboratory.

The instruction is based on the text material prepared by the Joint Vocational Education Committees of the Pulp and Paper Industry of the United States and Canada. The printed text is supplemented by such additional mimeographed material and questions as necessary to make the instruction complete and adequate.

In offering correspondence instruction on the preparation and treatment of pulp, the aim is to serve three types of persons: First, the mill operative, by affording him a means of becoming familiar with the fundamental laws underlying the operations which he performs, thus stimulating his interest and increasing his efficiency and earning power; second, the department head or foreman, by giving him an opportunity to study the various details connected with pulp making processes in other departments than his own, to broaden his outlook regarding the scope and possibilities of the pulp industry, and to improve his opportunities for more rapid advancement; third, the technical man or the new executive in the plant in familiarizing him with the different processes and control methods involved in pulp manufacture, not only in his own plant but in mills using any of the well-known pulping methods. In addition, these courses should be helpful to the teacher or the student of vocational training or technical subjects in the opportunity afforded to become familiar with the pulp making processes and machinery.

Although the courses will make a special appeal to those men who have had some high school or college training, the instruction is so arranged that the man with only a common school education may take it profitably, especially if he has had considerable experience in the mill.

Description of the Courses

Five separate courses are offered. Only one of these, however, Course 245, covers the entire field of pulp making. In addition to this complete course covering all pulping processes, four additional courses, covering respectively the mechanical, sulphite, soda, and sulphate methods of pulping, have been provided. These are not supplementary in any way to the complete course, but are given for those who wish to take up only one of the processes and thus obviate the time and expense necessary to cover all the various processes included in the main course.

Course 245. Preparation and Treatment of Wood Pulp

This course covers all the processes in common use at the present time and is intended to meet the needs of those who desire a thorough knowldge of the pulp industry in all of its various branches.

The history, scope, scientific basis, machinery, control methods, power requirements, and mechanical operation of a pulp mill manufacturing either ground wood, sulphite, soda, or sulphate pulps are considered in detail.

Topics Treated:

Properties and treatment of the wood; manufacture of mechanical pulp; manufacture of sulphite pulp; manufacture of soda pulp; manufacture of sulphate pulp; pulp treatment; bleaching.

Instruction fee, $20. Texts, $5. Thirty-two assignments.

Course 245A. Manufacture of Mechanical Pulp

This course includes only the topics dealing with the operation of the ground wood mill and the methods of pulp treatment incident thereto. The handling and conveying of the wood and the routine methods of grinding with the various types of grinder equipment in common use are considered:

Topics Treated:

Properties and treatment of the wood; history and description of the process; physical properties of the pulp; grinders and grinding; grinder stones and methods of handling; lay-out and operation of the mill; power requirements and production; grinder processes and pressure systems; pulp treatment; bleaching.

Instruction fee, $15. Texts, $5.00. Twenty assignments.

Course 245B. Manufacture of Sulphite Pulp

This course covers in considerable detail the various raw materials used and the methods of making up the cooking liquor. The milk of lime and acid tower systems are each considered, together with the various methods of gas recovery and the several control tests involved both in the acid manufacture and the cooking operation. The "direct," and "indirect" or Mitscherlich, methods of cooking are included in the topics taken up.

Topics Treated:

Properties and treatment of wood; history and outline of the process; raw materials used; preparation of the cooking acid; control of acid making; the cooking process; the Ritter-Kellner and Mitscherlich modifications of cooking; digester equipment and routine of the cooking operation; waste liquor and its utilization; pulp treatment; bleaching.

Instruction fee, $15. Text, $5.00. Nineteen assignments.

Course 245C. Manufacture of Soda Pulp

This course deals with the type of woods suitable to the soda pulping process, the procedure and control operations in the preparation of the caustic cooking liquor, digester operation and cooking method, pulp washing and refining, and cooking liquor recovery.

Topics Treated:

Character and treatment of the wood used; raw materials for cooking; preparation of the cooking liquor and control methods; the digester house; cooking process; washing and refining the pulp; bleaching; the evaporator room and liquor recovery.

Instruction fee, $15. Text, $5.00. Eighteen assignments.

Course 245D. Manufacture of Sulphate Pulp

The increasing use of the sulphate method of pulping and its wide application to the class of woods heretofore thought impractical for paper making give added interest to the subject matter of this course. The various procedures incident to the preparation of the liquor, the cooking, pulp treatment and recovery of the cooking materials are taken up in order and some attention given to the special problems involved in the operation of the sulphate mill.

Topics Treated:

Properties and treatment of the wood; history and outline of the process; the liquor room; causticizing; the digester room and the cooking procedure; diffusion of the stock; the evaporators; the furnace room; chemical control of the pulping operation; pulp treatment; bleaching processes.

Instruction fee, $15. Texts, $5.00. Twenty assignments.

Text Material

The printed text material used as a basis for these courses will be furnished to the student at the prices quoted. The student is free, however, to secure the text material from any source possible. Complete directions for obtaining the text material are sent with the first assignment. When secured through the Extension Division, the text material is supplied in pamphlet form, as the student progresses with the work.

Registration Fee

A registration fee of $2 for each course, in addition to the instruction fee for the course, both payable at the time of registration, is required of all enrolled from outside of Wisconsin who are nonresidents of the State of Wisconsin.

The following correspondence-study courses are offered by the

(*Continued on page* 38)

XUM

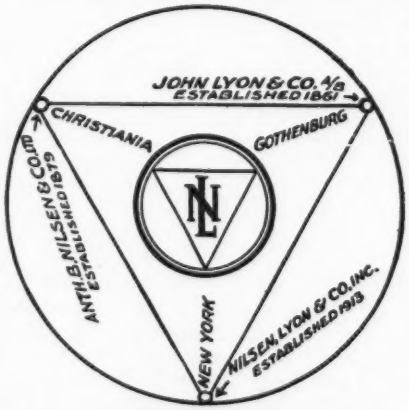
Agents
SUNDS AKTIEBOLAG
STRONG SULPHITE
indirect cooking

PERKINS-GOODWIN CO.
NEW YORK
PULP and PAPER

Agents
A/S Toten Cellulosefabrik
BLEACHED AND
EASY BLEACHING
SULPHITE

WOOD PULP

QUALITY BRANDS



HISSMOFORS	Strong Unbleached Sulphite
OSKARSTRÖM	Easy Bleaching Sulphite
DIESEN - - -	Bleached Sulphate
ESSVIK - - -	Unbleached Sulphite

STOCKS CARRIED ON DOCK FOR PROMPT DELIVERY

For Samples and Prices Address

Nilsen, Lyon & Co., Inc.
140 NASSAU STREET NEW YORK

Recent Incorporations

NATIONAL PAPER MILLS COMPANY, Wilmington, Delaware, manufacture boxes, capital $200,000. Colonial Charters Company.

The SMITH-BENNETT CORPORATION, Wilkes-Barre; capital, $25,000; purpose—manufacturing and selling at wholesale and retail paper, etc. Incorporators, Edward B. Smith, 1236 Wyoming avenue, Forty Fort; Doris S. Smith, 1236 Wyoming avenue, Forty Fort; Clarence W. Bennett, Hotel Sterling, Wilkes-Barre.

Swedish Wood Pulp Market

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 18, 1922.—"The Swedish wood pulp market in 1921 was exceedingly dull until the month of June, when there was a rally of short duration," according to the paper division of the Department of Commerce in its review of the Swedish wood pulp and paper industry for 1921. The division's statement continues:

"European countries appeared to be overstocked, few orders were received, while labor conflicts, lock-outs, together with keen German competition brought about a condition little short of utter stagnation. Prices of easy bleaching sulphite dropped from 735-750 kroner ($165.17-$168.54) to 250-275 kroner ($56.18-$61.80) in November—other quotations in proportion.

"The production of sulphite cellulose amounted to 464,000 tons—of which 31,000 tons were of bleached and 433,300 tons of unbleached—about 54 per cent of the normal output—the domestic paper mills consuming 13,000 tons of the former and 105,300 tons of the latter.

"The production of sulphate cellulose was 3,000 tons bleached and 113,000 tons unbleached sulphite—44.6 per cent of the normal capacity of the mills. 28,000 tons of the output were used by the domestic paper factories. American orders for sulphate in July, August and early September infused some life into the sulphate market—but without profit to the manufacturers, prices being too low.

"The export of pulp was as follows:

	1920	1921
Sulphite cellulose:		
Bleached	44,163 tons	16,207 tons
Unbleached: wet	40,734 "	5,714 "
dry	511,859 "	301,521 "
Sulphate cellulose:		
Bleached	8,584 "	4,799 "
Unbleached: wet	250 "	....
dry	131,714 "	97,965 "
Mechanical pulp:		
Wet	214,210 "	88,147 "
Dry	57,755 "	14,690 "
	1,009,269 tons	529,043 tons

Paper

"The chief disturbing factors in the paper trade were German and Finnish competition—which made it exceedingly difficult for the Swedish manufacturers. Early in the year book paper sold at 1.80 kroner ($0.405) per kilogram—but in July it came down to 1.10 kroner ($0.247) and later to 0.90 kroner ($0.202) per kilogram. Writing paper, which brought 2.10 kroner ($0.472) per kilogram in January and February dropped to 1.35 kroner ($0.303) in July, while November brought a further reduction to 1.10 kroner ($0.247). News print opened in January at 0.60 kroner ($0.135) per kilogram but in July it fell to 0.35 kroner ($.079) and in November to 0.30 kroner ($0.067) per kilogram. Production had to be curtailed—news print to about 70 per cent of normal, wrapping paper to 30, fine papers to 22, and pasteboard and cartons to 20 per cent. About 150,000 tons of news print was produced against 163,000 tons in 1920.

"England and the United States were the largest buyers and Australia bought considerable quantities. Heavy Russian orders had to be refused because of the prices offered—Finland finally getting them. Anti-dumping laws in England and the United States gave Swedish manufacturers such concern that they united in a petition to the government for retaliative legislation—but the Riksdag offered no relief.

"The export of paper was:	1920	1921
News print	116,728 tons	111,963 tons
Writing paper, book printing paper, drawing paper, etc.	143,709 "	70,827 "
Cardboard	24,562 "	8,579 "

CORRESPONDENCE COURSES IN WOOD PULP

(*Continued from page 36*)

University Extension Division for those students who find themselves deficient in preparation and desire to take some preparatory work through correspondence:

Elementary and Advanced Mathematics, Shop Sketching, Shop Drawing, Mechanics, Strength of Materials, Machine Design, Elementary Chemistry, Qualitative Analysis, Elementary Physics, University Physics, Electricity, Hydraulics, Elementary English, English Composition.

For additional information concerning these courses address Correspondence-Study Department, University Extension Division, University of Wisconsin, Madison, Wis.

It is stated that a considerable number of students have already been enrolled.

Eastern Mfg. Co. Changes to Oil Fuel

[FROM OUR REGULAR CORRESPONDENT.]

BANGOR, Me., October 16, 1922.—The Eastern Manufacturing Company's long contemplated change from coal to oil fuel is now being made and will be completed within a few weeks. The company is constructing, at its South Brewer plant, two tanks to which oil will be pumped from tank steamers and barges at the wharves, a distance of about 1,800 feet. Tank cars will be filled in the same way direct from the steamers, for transportation to the Lincoln plant where there will also be a storage tank of about 20,000 barrels capacity.

The Eastern has been burning 62,000 tons of coal yearly and 240,000 barrels of oil will be needed in place of this. The two tanks at South Brewer will have a combined capacity of 110,000 barrels and that at Lincoln will hold 20,000 barrels, so that enough to supply both plants through the winter may be stored at one time. While the cost of installing the oil plant will be heavy, it is believed that the change will effect great economy, as well as insure the company against expensive interruptions of its operations by failure of the coal supply. Even with water transportation at low freight rates, coal is expensive, while with rail transport, which would be necessary for a considerable part of next winter's supply, the cost would be prohibitive.

Paper Man Held for Attempted Suicide

The following announcement appeared in the *Evening Telegram*, New York, Monday, October 16: "Walter Gould, thirty-six years old, a wealthy paper manufacturer, of No. 47 Bonn place, Weehawken, is held by the police in St. Mary's Hospital, Hoboken, following his alleged confession of attempted suicide. He is expected to recover from the operation performed last night in which a bullet was removed from his left breast.

"Gould staggered into the hospital with a wound in the breast. He told attendants he had been held up and shot by two men near his home. Later he broke down and confessed, the police say, that he had shot himself because of depression due to ill health and business reverses."

XUM

VELURE SURFACE

are recognized by the trade as

Standard Felts for Finish
and
VELURE Felts

are made only by

LOCKPORT FELT CO., Newfane, N. Y.

Adopt the VELURE System for Class

Announcement regarding
"Buckeye Pulp"

THIS cotton fiber half stock for Quality Papers is now sold direct to the paper mills of the country by our own organization.

It is a pleasure to Procter & Gamble to express appreciation of the services rendered by the Pulp and Paper Trading Company, our former agents, in introducing this new material to paper manufacturers.

We shall be glad to quote you on Buckeye Pulp and invite your inquiries addressed to our

Pulp Sales Department

THE PROCTER & GAMBLE DISTRIBUTING CO.

CINCINNATI

Editorial

Vol. LXXV New York, October 19, 1922 No. 16
FIFTY-FIRST YEAR

Canadian Paper Exports Increase

Exports of pulp and paper from Canada continue to show decided increases according to the figures just issued for August. The exports for the month this year were valued at $10,621,273, an increase of $883,021 over the previous month and of $1,225,882 over August, 1921. Compared with the July figures, the greatest increases were shown in news print, bleached sulphite pulp and mechanical pulp.

In news print the exports for August of this year were valued at $5,933,825 as compared with $6,015,305 for August of last year. The exports of book paper were valued at $44,053 as compared with $11,349 for August a year ago. The exports of other manufacturers of paper were valued at $576,448 as compared with $223,683 for August of last year. The total exports of all varieties of paper for August were valued at $6,554,326 as compared with $6,250,337 for August, 1921.

The exports of sulphate pulp for August of this year were valued at $774,643 as compared with $587,664 for August of last year, the exports of bleached sulphite for August were valued at $1,132,910 as compared with $834,445 for August of last year, the exports of unbleached sulphite for August were valued at $852,660 as compared with $489,261 for August of last year, the exports of mechanical pulp for August were valued at $1,306,728 as compared with $1,233,684 for August of last year and the exports of all varieties of pulp for August were valued at $4,066,947 as compared with $3,145,054.

Book paper exports show a big increase over August, 1921, as do exports of all kinds of pulp, the quantity of unbleached sulphite exported being more than double the quantity in August, 1921.

Of these exports in August, paper to the value of $5,612,913 and pulp to the value of $2,986,419 went to the United States, paper to the value of $456,170 and pulp to the value of $738,236 went to the United Kingdom, and paper to the value of $485,243 and pulp to the value of $342,292 went to all other countries.

Exports of pulpwood in August amounted to 120,021 cords, valued at $1,276,601 compared with 90,965 cords valued at $946,946 exported in July.

For the first three months of the current fiscal year there is an increase in the value of pulp and paper exports of $6,180,950 compared with the corresponding five months of 1921.

For five months of 1922 news print to the value of $27,257,382 was exported as compared with $25,774,395 in 1921, book paper to the value of $99,510 as compared with $149,506 in 1921 was exported, and other manufacturers of paper to the value of $2,465,165 as compared with $1,680,920 in 1921 were exported.

For five months of 1922 sulphate pulp to the value of $3,630,106 was exported as compared with $2,607,735 in 1921, bleached sulphite valued at $4,827,764 as compared with $2,714,912 was exported, unbleached sulphite to the value of $4,200,419 as compared with $3,335,375 in 1921 was exported, and mechanical pulp to the value of $3,427,244 as compared with $3,463,717 in 1921 was exported.

For five months of 1922 the total quantity of all varieties of pulp exported was valued at $16,085,533 as compared with $12,121,739 for the same period in 1921.

Exports of pulpwood for these five months amounted to 411,661 cords valued at $4,255,333 compared with 371,780 cords, valued at $4,882,365 in the corresponding period of 1921.

The Coming of Good Business

On every hand the welcome shout is heard: "The tide has turned! Business is good! We're making money!" It is like the first brisk day of spring sunshine after a winter of snow and rain—and mud. Paper dealers are no longer deluding themselves when they say that business depression is over. There is something far more tangible than a rosy colored dream in a substantial order which has been placed at a figure that will admit of a just profit, not only to the producer and middle man—the dealer—but to the consumer as well.

It is no longer a question of which of these three gets "stuck" with the goods.

The "nigger" has vanished from the grinder's woodpile—the monkey wrenches have been extracted from the erstwhile smooth running paper mill machinery and even the fly in the ointment of the consuming trade has turned out to be an optical illusion.

When prices inclined sharply during the recent strikes, paper men feared the advance would prove to be of a momentary character—enough to take care of the increased costs of raw materials brought about by the industrial turmoil. They rated the spurt in demand as an artificial one, precipitated by the eagerness of buyers with depleted stocks to cover their needs during the period of uncertainty. Now that business has settled down to a normal clip with prices still high enough to admit of a profit and with a steady regular demand, it is evident that conditions more fundamental than those brought about by the strikes may be held to account for the upward trend of the market.

The demand for paper is reflected in practically every basic industry. There exists perhaps a closer correlation with all other trades than is the case with any other business. A boom in textiles means the increased use of tissues and wrapping papers; a building boom precipitates a heavy wall paper demand; a general business boom brings about a stimulated consumption of all kinds of paper; increased advertising resulting from a healthy activity in any line may be translated into so many additional rolls of news print or so many cases of book paper. Demand cannot be foisted upon an unsuspecting public. It must come as a logical result of the public's needs. When industrial conditions are right, no one is left "holding the bag." To follow one instance through: John Doe buys full-size sheets of bond paper for his office because he believes they are more satisfactory than the half-sheets adopted during war-time stringency. Doe's clients are better satisfied and he finds business conditions so much better that he can well afford to make the change. There are more letters to be written acknowledging orders. Mr. Doe is again using separate carbon sheets for file copies rather than having his stenographers use the backs of in-

XUM

coming letters. He finds this more convenient—and then, money is freer.

John Doe's stationer, as a result, finds his business picking up to such an extent that he can afford to advertise in the daily papers. This nets him a substantial increase in customers and adds enough additional revenue to the newspaper to warrant its printing several columns of additional text matter daily. The newspaper publisher, in consequence, must provide himself with sufficient news print to take care of his larger editions. John Doe's stationer must consult his dealer on increased future shipments of stock to meet his own demands. The dealers and publishers turn to the manufacturer, the manufacturer to the producer of raw materials, the grinder and the importer—and the procession is on.

To expand healthily, good business must be started from the consumer end of the line. If it starts at the other end, there will be a stagnation somewhere. A certain degree of confidence must be placed in the stability of the demand created by each successive plane of consumers. When this is fully restored, as in the present situation, business moves along like a well oiled machine. The series of little jumps occasioned by the distribution of the finished product to its ultimate consumer is taken as a matter of course.

In order to assure ourselves that there is really a sound basis for prosperity, we need but glance at any one of a dozen conservative and reliable industrial, financial and economic reviews. Publications from both Dun and Bradstreet,—from the Harvard Bureau of Economic Research, from the Bureau of Foreign and Domestic Commerce, from the Federal Reserve Bank—all unite in the assurance that while good times are at hand, better times are ahead.

Drying of Paper

In connection with drying of paper at the fall convention held in Detroit, October 9 and 10, the following committee was chosen: G. D. Bearce, News Print Service Bureau, New York, N. Y.; R. L. Bosworth, Crocker-McElwain Company, Holyoke, Mass.; E. P. Gleason, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; A. R. Harvey, Gardner-Harvey Paper Company, Middletown, Ohio; R. S. Hatch, Hammersley Manufacturing Company, Garfield, N. J.; S. B. Jones, Pejepscot Paper Company, Brunswick, Me.; W. R. Maull, Dill & Collins Company, Philadelphia, Pa.

This committee will complete the details of the code for computing the efficiency of drying and will co-operate with mills making tests on their paper machines to determine the efficiency of drying.

S. E. Seaman Assumes New Duties

CINCINNATI, O., October 16, 1922.—Stewart E. Seaman, who during the last few years has had a leading part in the rapid development of cotton linter pulp as a high grade papermaking material, has become associated with The Procter & Gamble Distributing Company of Cincinnati, Ohio, in connection with sales of their increased output of cotton fiber pulp. Mr. Seaman was formerly connected with the Stamsocott Company of Hopewell, Va.

Transfer of Address

PORTLAND, Ore., October 16, 1922.—Ralph K. Pratt, M. E., has recently changed from Wisconsin River Pulp & Paper Company, Stevens Point, Wis., to Crown Willamette Paper Company, Pittock Block, Portland, Ore. Mr. Pratt will move to Portland about November 1.

May Continue Power Development

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., October 16, 1922.—The big Beebee Island power development which the World War, with its prohibitive prices, left in the first stages of prosecution, is now showing signs of coming to life again. Already correspondence has been taken up between the big interests involved with a view to ascertaining what the sentiment may be for early completion of the plant. Some of the local concerns most interested in the project have already taken up the matter with officials of the New York Air Brake Company in New York.

G. Seymour Knowlton, of Knowlton Brothers, a member of the committee of unified interests that is handling the matter, said that the development is again being given attention, but that he believes the contractor will be recalled to finish the job. He would not say that the development would be taken up next spring, but the fact that there is great need for it, together with the fact that the promoters are already discussing the matter, leads to the belief that the work will go ahead at the earliest possible moment.

As soon as the power plant is ready the Northern New York Utilities, Inc., will dismantle its present plant on the main shore and the New York Air Brake, George Lance, Knowlton Brothers, and other separate powers will be eliminated as the water passes through the wheels of the big plant.

The proposed plant will cost about $600,000 and will have an installation for the development of 10,000 horsepower. Jarrett-Chambers Construction Company had the contract when work was halted and it is expected that this concern will be recalled to finish the job.

Committee on Standard Methods of Testing Materials

HOLYOKE, Mass., October 16, 1922.—H. U. Kiely, American Writing Paper Company, Holyoke, Mass., has been appointed chairman of the Committee on Standard Methods of Testing Materials, succeeding N. F. Becker, Westfield River Paper Company, Russell, Mass., who has been forced by press of business to relinquish it.

This committee has done exceedingly valuable work during past years. Last year the following methods were approved: aluminum sulphate, crown filler, lime, and soda ash. It is planned to continue the adoption of approved methods of various materials and as soon as feasible, to arrange for publication of standard methods.

Barrett Paper Co. Busy at Latrobe

LATROBE, Pa., October 16, 1922.—With three shifts, the paper mill of the Barrett Company is now going at full capacity 24 hours a day in an effort to catch up on the orders which have been pouring in for some time past. An immense amount of paper is being produced, and the outlook gives promise of steady operation for months to come following the shutdown of nearly a year. The plant has its own coal mine and that is proving a winning card for it in these days of coal shortage.

Change in Management of Van de Carr Paper Co.

STOCKPORT, N. Y., October 17, 1922.—H. R. Lewis, general manager of the Van de Carr Paper Company for the last year, has resigned. Mr. Williamson, who was superintendent of the Amoskeag Paper Mills Company, of Manchester, N. H., has bought an interest in the company and will assume the management at once. It will be remembered that Mr. Lewis previous to his connection with this company was superintendent of the East Walpole mill of Hollingsworth & Vose Company.

XUM

SYMBOL of QUALITY
KALBFLEISCH CHEMICALS
FOR NEARLY A CENTURY

Exclusive **Manufacturers**

of
Ryan-Seaman Process

DRY SATIN WHITE

The Latest Development in The Coated Paper Industry

Casein
Crystal Boro Phosphate
(A solvent for casein)

ALUM

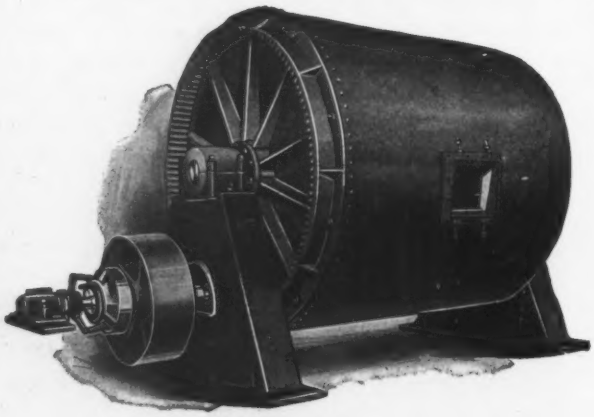
Both Commercial and Iron Free
FOR PAPER MAKERS

Pulp Satin White
English China Clay

THE KALBFLEISCH CORPORATION

200 FIFTH AVENUE, NEW YORK, N. Y.

MIX YOUR DRY SATIN WHITE IN A CROSSLEY BALL MILL



We have been building ball mills since 1879.

You are invited to benefit by our extensive service. An opportunity of quoting on your requirements is solicited.

Write for full information and prices.

THE CROSSLEY MACHINE COMPANY

TRENTON, N. J.

Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

SIZING PAPER WITH ROSIN

(Continued from last week)

Behavior of Sodium Resinate Solutions Pure and in Admixture with Free Rosin

Rosin milk or milk of rosin contains combined as well as free rosin, the combined constituent being in the form of a sodium resinate. It is well-known that the solution of this resinate in water is a clear solution only within certain limits of temperature and concentration. The concentration limits are from 4 to 5 per cent. If the dilution of the solution increases, then dissociation of the dissolved resinate takes place. Just how great this dissociation is, is not known at the present time. However it may be assumed that the electrical conductivity is great in diluted solutions and that there is a regular relation between it and the concentration, or stated in other words, it is probable that in these dilutions a considerable part of the resinate is dissolved in pure form. When the dilution is increased still further, then the system becomes clearly two-phase in character.

Mechanism of the Dissociation

The increased dilution of the solution increases the dissociation of the sodium resinate and at the same time, due to the increased hydrolytic action of the water, the resinate is decomposed into free rosin acid (abietic acid) and caustic soda. Due to the insolubility of the rosin in water, it precipitates in fine particles. It is accordingly evident that the dilutions of the milk of rosin size, which takes place in the hollander, must result in the hydrolysis or decomposition of quite a large amount of the resinate.

Effect of Increasing the Concentration of Rosin Size

On the other hand, if the concentration of a rosin size, containing sodium resinate is increased, so that the percentage of resinate is greater, then different effects are obtained. It was observed that if a solution of sodium resinate was increased over 4 per cent then the salt was precipitated. If the concentration is increased still further, then a gelatinous mass is obtained, which behaves almost like a jelly. It is apparent that in this form the resinate solution is colloidal in character. When heated, these solutions are fluid and can be poured easily, but in the cold the solutions are very stiff.

Reaction Between Aluminum Sulphate and Resinate of Soda

Much time has been spent in studying this subject, but no definite explanation or conclusion has been derived. It is evident right at the outset that the concentration of the solution must have a considerable effect on the reaction. Then again, from the facts disclosed above regarding the behavior of the resinate solution in different degrees of dilution, it follows that this reaction will take different courses under changing concentrations. Furthermore, this fact must be emphasized, namely, that in the hollander and beaters, the reaction takes place in the presence of cellulose fibers and under the influence of vigorous motion of the reacting masses.

Effect of Excess of Sulphate of Alumina

The reaction may be expressed as in the following equation: $6NaH_3.R + Al_2(SO_4)_3 = 3\,Al(H_3R)_3 + 3\,Na_2SO_4$. H_3R is the abietic acid radicle. This reaction holds good when equivalent amounts of the two reacting masses are allowed to act on each other in diluted solutions.

The regular procedure of the reaction under the aforementioned conditions can be confirmed by actual experimentation. However, it has also been established that an excess of the precipitating agent, sulphate of alumina, for example, has apparently no effect on the course of the reaction. The sulphate of alumina, added in excess, can always be found in the filtrate. The tests were carried out with occasional and not constant agitation of the solution.

Investigation of the Precipitated Products

Considerable study has been made of the precipitated products that result from the above reaction. It is known that the resinate of alumina is an unstable product. At any rate, it shows different degrees of solubility in ether directly after precipitation than later. Muriatic acid only will not completely decompose the precipitate, and in the presence of alcohol it undergoes complete decomposition with separation of rosin. A considerable part of the alumina is dissolved.

Influence of Aluminum Sulphate on the Aluminum Resinate

The fact that aluminum sulphate has a decided influence on the precipitate of resinate of alumina has been substantiated by actual experimentation. Of course, it may be thought that there is quite a difference in the degree and character of this influence, dependent whether it takes place directly after the precipitation of the resinate, as it occurs in the hollander, or at a later stage in the process. The experiments were made in such a manner that the precipitate was used directly after it was formed. Particular care was taken to see that the distribution of the precipitation through the solution was as fine as possible. The results of these experiments, which were carried out at the ordinary temperature, did not agree in any

TECHNICAL SECTION, PAGE 194

XUM

way with the suppositions, made above, as even when the length of time the precipitate was subjected to the action of the sulphate of alumina was considerably prolonged the action was negative. The results of the experiments may be seen in the table following:

INFLUENCE OF SULPHATE OF ALUMINA ON ALUMINUM RESINATE

	Quantities used		Time	% ash in precipitate		Alumina in filtrate	Alumina used	Reaction
	Resinate Grams	Sulphate Grams	of action Hours	Before action	After action	Grams	Grams	temperature
1.	1.00	2.00	2	4.72	4.70	0.270	0.274	18-20°
2.	1.00	2.00	12	4.78	4.70	0.279	0.274	

Experiments Made in the Presence of Alcohol

As there was presented the possibility that decomposition of the resinate of alumina was quickly stopped through the deposition of the precipitated rosin on the individual particles of the resinate, the experiments were repeated in the presence of alcohol. The new results were slightly different from those of the former experiments. When the aluminum sulphate was permitted to act on the resinate in the cold for a rather long period of time, 24 hours, then no change whatever took place with the exception of an extremely light precipitation of oxide of alumina or basic salt. At the temperature of the water bath, after the action had been allowed to proceed for five hours, about 41 per cent of almost ash-free rosin was dissolved. These results were not altered in any way after long durated action of the sulphate on the resinate precipitate. In these experiments, in which 150 cubic centimeters of diluted sulphate of alumina solution of definite content and an equal amount of 96 per cent alcohol were permitted to act on one gram of sulphate of alumina, the solvent action of the alcohol in the diluted condition seemed to be the only important factor.

It may be accordingly concluded therefrom that once the resinate of alumina is formed, it is extraordinarily resistant to and perhaps entirely insensitive to the action of sulphate of alumina.

Chemical Composition of the Resinate Precipitate

The next question that may be asked is what is the composition of the resinate precipitate? Does it consist entirely of resinate or is only a part resinate, and what proportion thereof and what are the other constituents? Is it not possible that a quantity of aluminum hydroxide and rosin is formed as well in accordance with the following equation:

$$6Na.H_3R + 3\,Al_2(SO_4)_3 + 6H_2O = 3Al(OH_3 + H_3 + 3Na_2SO_4.$$

To conclude that the precipitate is a resinate only and not a mixture containing other constituents from the fact that it is apparently entirely soluble in ether at the outset does not appear to be correct in accordance with the newer considerations developed from the colloidal chemical basis. One gram of the precipitate contains 40 to 50 milligrams of oxide of alumina. It is doubtful whether this quantity of precipitate should be used for the determination of the solubility in ether. The question is whether or not this small amount of aluminum oxide is not dissolved in colloidal form in the ether. It is undoubted that the precipitation of aluminum hydroxide in the presence of rosin is in an extremely fine state of subdivision, and as the solubility is a function of the size of the particles, then it is practically possible that a colloidal solution of aluminum hydroxide is formed in the ether. The fact that the precipitate is partially insoluble in ether after it is once dried can then be explained. The drying of the resinate precipitate causes the agglomeration of the aluminum hydroxide particles into coarser grains. In this form they are insoluble in ether. On the other hand, it holds fast in mechanical combination larger amounts of rosin and consequently neutralizes the solvent action of the ether as well. In a similar manner it may be assumed that the solvent action of alcohol, which ceases when about 60 per cent of the resinate is dissolved in it, comes to a stop when due to the formation of an absorptive combination between rosin and hydrate of alumina. The fact that about the same behavior of alcohol towards the precipitate has been established by different observers has been explained by the formation of a basic resinate insoluble in alcohol through its action.

Reaction Between Sodium Resinate and Hard Water

The next consideration that must be given attention at this point is the reaction that may take place between the resinate of soda and the salts, which cause hardness in water. It has been customary to consider these reactions as pure chemical transformations and to speak accordingly of either neutral or basic salts of the alkaline earths with rosin. However, we know now that this characterization is premature. Up to the present it is merely known that the salts, producing hardness in water, are able to precipitate solutions of resin. Just what is the nature of the precipitate is not understood. It is rather doubtful that a pure chemical reaction plays an important rôle in this connection. To what extent reactions of a colloidal nature take place is still uncertain.

Evidence of Predominance of Chemical Reactions

The fact that pure chemical reactions predominate may be clearly deducted from the behavior of solutions of calcium sulphate and calcium chloride, the amounts of which used are in proportion to the molecular weights, with neutral rosin solutions. In order to accomplish the separation of the rosin into flakes, only a little of the dissociated calcium sulphate is required, but in a considerably greater concentration than when calcium chloride is employed. The ratio of the concentrations, which are equally active, is about one to ten. While precipitation takes place in the case of calcium chloride when about 0.12 gram of the salt is present in a liter of rosin, the same action takes place when calcium sulphate is used, only when the concentration of the salt is 1.53 grams per liter. Converted into practical terms, this indicates that a 6 degree hardness in the water, figured in terms of calcium chloride, and a 60 degree hardness, figured in terms of calcium sulphate, must be existant before complete precipitation of the resinate can be accomplished. The proportions apply strictly to the concentration of resinate solution mentioned above, and not to the reacting liquids, under continual motion, as they are found in the hollanders. It is undoubtedly noteworthy that the precipitation of the size was complete or almost so in all these experiments, even when, as happened in several experiments with chloride of calcium, the amount of the inorganic salt present was not sufficient theoretically for carrying out the reaction.

Colloidal Reactions Must Take Place

This fact leads to the conclusion that in spite of the complete precipitation of the resinate colloidal reactions must take place as well as pure chemical reactions. It is probable that the flocculations produced by the chemical reactions are dissolved out, but the complete flocculation or precipitation, as far as it itself is concerned, is brought about by the changes and disturbances which occur in the system at this point. For this reason it may be held that absorption phenomena play quite an important rôle at the surface of the flakes as they are formed in the first place.

Experiments with Magnesium Salts

Experiments were carried out with magnesium salts; the results are very similar to those obtained and described above. Magnesium chloride was used in these experiments. Precipitation or flocculation of the rosin could be observed when about 0.01 gram of the inorganic salt was present in a liter of solution, containing one gram of combined rosin. The precipitation of the rosin was complete when the concentration of the magnesium chloride was increased to 0.03 gram per liter. The reaction consumed only a short space of time to go to completion. If about double the quantity of the inorganic salt were used, then the precipitation was instantaneous.

Composition of the Precipitate

As far as the composition of the precipitate is concerned, one fact may be disclosed right at the start, and that is that in no case was

XUM

there observed the formation of a normal calcium or magnesium resinate. The calcium precipitate contained 5.6 to 5.7 per cent CaO at a maximum in the place of the theoretical 8.7 per cent; the magnesium precipitate contained a maximum of 3.2 per cent MgO, compared with a theoretical percentage of 6.2. The weights of the combined oxides are not related in accordance with their molecular weights.

In conclusion it may be stated without equivocation that the observation, according to which sodium resinate in dilute aqueous solution may be decomposed in a regular manner by the salts, producing hardness of the water, is by no means correct in its entirety. It is much safer to assume that colloidal reactions play a definite part in the process, which confuses the matter.

Behavior of the Precipitates Towards Aluminum Sulphate

The next consideration that interests us is the behavior of these precipitates, formed by the reaction of the hardness salts in the water with the resinate in the rosin size, towards solutions of sulphate of alumina. This matter is of considerable importance, as there are several views held regarding this question. It is generally felt that these salts, as they are formed in the hollander, are subsequently decomposed again due to the action of the sulphate of alumina in the solutions.

The following experiments were carried out with the idea of arriving at a definite conclusion regarding this matter. One gram of the precipitate, which is formed through the reaction of known inorganic salts, to which the hardness of water is assigned, with solutions of neutral resinates, is heated on the water bath with another solution, containing one gram of sulphate of alumina. The precipitate used in this experiment was freshly prepared and washed by decantation and was still damp when subjected to the action of the sulphate. The amount of dry salt present was determined in a The solubility of the precipitate was tested and its ash content constant in working with the calcium and magnesium compounds. separate analysis. The experimental conditions were maintained determined by analysis.

Results of the Experiments

The results of these experiments are given in the following table:

THE INFLUENCE OF ALUMINUM SULPHATE ON CALCIUM AND MAGNESIUM-ROSIN COMPOUNDS

	Used				In the filtrate		% Ash in precipitate after experiment	Composition of ash		Temperature reaction
	Rosin-Ca Grams	Compound % ash (CaO)	Sulphate Al_2O_3 Grams	Time of test Hrs.	Al_2O_3 g.	CaO g.		Al_2O_3 %	CaO %	
1	1.00	5.67	0.1635	5	0.1520	.....	4.66	30.5	69.5	
2	1.00	5.60	0.1635	5	0.1535	0.0236	4.60	....	....	water
	Rosin-Mg compound									bath
	Grams	% Ash MgO				MgO g.			MgO	
3	1.00	3.50	0.1635	5	0.1632	0	3.27	0	....	

From these results it may be easily seen that the behavior of the precipitate, obtained with calcium, is quite different from that which results due to the action of magnesium chloride. The aluminum salt has no action at all on the latter. On the other hand, it is easy to see that in the so-called calcium resinate there is clearly an interchange of CaO with aluminum oxide. The exact mechanism of this reaction was not investigated.

Experiment with the Calcium Precipitate in the Cold

However, in order to approximate the conditions of actual practice more closely in the experimental work, the experiments with the calcium precipitate were repeated in the cold. These were made in the following manner: A solution of one gram of rosin, figured as neutral resinate, in one liter of water, was mixed with a saturated solution of calcium sulphate. The two were allowed to react until the precipitation of the rosin was complete. Then one gram of sulphate of alumina, dissolved in 50 cubic centimeters of water, was added and the entire mixture was allowed to stand for a comparatively long period of time, during which time it was subjected to frequent shaking. The results of these experiments are given in the following table:

	Sulphate of alumina		Ash in the precipitate after the test	Composition of ash	
	Used Al_2O_3 Grams	In filtrate Al_2O_3 Grams	%	Al_2O_3 %	CaO %
1	0.1635	0.1582	5.45	12.4	88.0
2	0.1636	0.1576	5.38	15.1	84.6

These results indicate that the original precipitate, which, according to what has been said before, should contain 5.6 per cent CaO, does contain approximately this amount of ash, but the ash consists of alumina as well as of CaO. This must be connected with the fact that calcium oxide is found in the filtrate and must be explained in connection therewith just in one way only, namely, that a decomposition of some sort took place. Just what is the exact nature of the decomposition, whether we are concerned here with a pure chemical reaction or with absorption phenomena, must be determined by subsequent experimentation.

Sodium Resinate and Free Rosin

As the rosin size always contains free rosin, in the form in which it is used in practical work, the question arises as to how these reactions, described above, proceed when free rosin is present. Are there any changes in the behavior of sodium resinate under such conditions? As we have studied the behavior of the two components of rosin size individually in what has preceded and have established to some degree at least the conditions under which they react with various chemicals with which they come in contact, it is possible to foretell to a certain extent the behavior of the mixture, containing both these ingredients. Hence, the one thing that may be expected most, is a higher degree of stability of such mixed sizing solution towards the precipitating action of electrolytes.

Behavior Toward Aluminum Sulphate

Nevertheless, as far as aluminum sulphate is concerned, such a precepitating action was not observed in the case of the rosin sizes, which were used in practical work at the proportion of free rosin to combined rosin contained therein. The complete precipiation of the size solutions, containing up to a maximum of 45 per cent free rosin, is always accomplished—and instantaneously at that—when as much sulphate of alumina is added as will suffice to neutralize the alkalies present as resinates. It is only when the content of free rosin in the size becomes greater than 50 per cent that an excess of the precipitating agent is required to produce the same effect. Of course, precipitation of the rosin takes place in this case as well, when the amount of sulphate added corresponds only to that required to neutralize the alkali present in the resinate, but under these conditions complete precipitation takes place only after allowing the reacting masses to stand for some time.

It can be concluded from a number of experiments, which were made to establish the conditions of the precipitation, that this excess amount of sulphate of alumina, which was added for the purpose of securing instantaneous complete precipitation of the rosin, increases in a similar degree with the the increase in the percentage of free rosin in the size. (It may be mentioned in passing by that sizing solutions, which contain a greater proportion than 50 per cent of free rosin, were made by the admixture of suspensions of free rosin to the size, containing the same, a method of preparation which might possibly have some effect on the results obtained in the experiments.) The observed excess of precipitating agent required is only very small, and in this connection it is noteworthy that the total requirement of sulphate of alumina to produce complete precipitation of the free rosin and the resinate in the size is much less than the quantities, obtained by calculation from the individual requirements of the two separate constituents, free rosin and sodium resinate.

XUM

Mechanical Inclusion of the Free Rosin

The explanation of this phenomenon, which has generally been accepted and which has been held to be self-evident, is that the free rosin is precipitated along with the resinate on the addition of the precipitating agent. In actuality this phenomenon is by no means a natural thing. A very simple analysis of the matter shows right at the start that we are dealing here not with a simple chemical reaction and that this joint coagulation is itself a phenomenon, which results from the chemical decomposition of the existing resinate by the aid of the aluminum salt.

Precipitation of the Free Rosin an Adsorption Phenomenon

The first thought that comes to mind is that the precipitation of the free rosin is apparently caused by adsorption at the surface of the precipitate, which forms in the first place through the chemical decomposition. As long as the percentage of free rosin size is not too large, the two phenomena—chemical decomposition and adsorption—practically follow one another directly. As the proportion of free rosin increases, however, the adsorption of the free rosin does not follow directly after the chemical decomposition, but that phenomenon slows up markedly, a fact which can be observed in the afore-mentioned experiments.

Precipitation of the Free Rosin Due to Disturbances in the Equilibrium

The precipitation of the free rosin, in addition to being caused by the phenomenon of adsorption, is also affected by disturbances in the equilibrium of the entire system. The suspension of free rosin in the resinate solution is in the state of labile equilibrium, and the change in this condition through the chemical decomposition, which takes place with great rapidity, brings about the transformation of the suspension into the stable coagulated condition. Inasmuch as the chemical decomposition is an important factor in solutions, containing considerable proportions of resinate of soda, this fact affords an explanation why it is just in this case that the precipitation of the free rosin is complete and is effected instantaneously. The reason why the existing free rosin in the case being cited cannot exert its inherent resistance to precipitation to greater effect must likewise be sought in the especially strong precipitating action and the absorptive powers of the aluminum compounds—perhaps of the aluminum oxide formed from them during the course of the reaction.

Practical Results Derived from the Above Discussion

The following facts, which are of practical importance, are derived from the discussion which has preceded. It was mentioned at the outset that a paper size which contained only free rosin required quite a considerable amount of sulphate of alumina for precipitation (not for sizing). The quantity of material that a pure resinate solution requires for precipitation is by far smaller than the former, but on the other hand it is greater than that required by solutions which contain not more than 50 per cent of free rosin. It is only when the percentage of free rosin increases above this point that the requirement of sulphate of alumina for precipitation increases further. If a curve is drawn, in which the requirement in sulphate of alumina is plotted against the free rosin content of the size, then it would contain a minimum point, corresponding to which the size solution would be completely precipitated by a minimum amount of sulphate of alumina. It is apparently by no means an unprofitable task to determine where this minimum point lies for different rosin sizes, and what factors, method of preparation and dilution, the additional influence of the paper stuff as well as others, have an influence on the position of this point. The precipitates which result in the rosin solutions containing free rosin through the action of sulphate of alumina are composed as follows: The alumina content of the precipitates is quite uniformly independent of the resinate content in the sizing solutions.

Experimental Results on Precipitation of Rosin

The results, obtained from the experiments on the precipitation of rosin sizes, are seen in the following table, and from the same it is evident that the reactions which take place therein proceed in a very regular manner.

	Materials used				Used		In the filtrate	
	Rosin	Free rosin	Sulphate	% Ash in precipitate	Al_2O_3	SO_4	Al_2O_3	SO_4
1	1.00 gm.		0.50	2.90	0.060 g	0.198 g	0.030 g	0.199 g
2			1.00	2.85	0.120	0.395	0.089	0.394
3			2.00	2.90	0.240	0.790	0.212	0.795
4		40%	4.00	2.70	0.480	1.580	0.458	0.586
5		50	2.00	2.40	0.240	0.790	0.210	0.786
6		65	2.00	1.91	0.240	0.790	0.219	0.796
7		70	2.00	1.86	0.240	0.790	0.219	0.794
8		75	2.00	1.39	0.240	0.790	0.223	0.789
9		80	2.00	1.15	0.240	0.790	0.228	0.787

In this case as well the question whether the precipitate of aluminum resinate results from the combined portion of the rosin or if it is a mixture of free rosin and oxide of alumina, must remain unanswered for the present. It may be mentioned that the precipitates which are obtained with rosin sizes containing a very large proportion of free rosin, generally show a somewhat higher alumina content than would correspond according to the percentage of resinate contained therein. This is undoubtedly to be laid to the adsorption of the aluminum salt. This is clearly seen from the curve diagram of the afore-mentioned results. The curve does not pass through the origin for a free rosin content of 100 per cent.

Free Rosin and Hardness of Water

In regard to the influence of the free rosin on the effect of the salts, causing hardness in water, on the solutions of the size, all the experiments have shown that the presence of the free rosin makes the solutions more stable, that is, the free rosin acts as a protective agent in preventing the precipitation of the size solutions by the inorganic salts in the water. It is found in different places in the literature that free rosin solutions are in general more sensitive towards hardness salts than resinate sizes. However, in accordance with the author's own observations, we must differentiate between methods of preparation and solution of the size on the one hand, and on the other hand between methods of its further dilution and use, when we consider this question.

Results of Laboratory Experiments

The following table shows the results of several experiments, which were carried out in the same manner as those made in the corresponding tests with neutral rosin size. The results indicate the increased stability of a rosin size, containing 40 per cent of free rosin, in comparison with the experimental results obtained with a pure resinate size. The incerase in the stability is noticed in every case for all the salts, which are known to cause hardness of water, even for the magnesium salts, which possess a high degree of precipitating power.

	Hardness salt	Hardness in German degrees	Neutral rosin milk	Rosin milk containing 40 per cent free rosin
1	Calcium chloride.....	5	No precipitation.	No precipitation.
2	Calcium chloride.....	10	Immediate precipitation.	Precipitation after 2 hours.
3	Calcium chloride.....	15	Immediate precipitation.	Rapid precipitation.
4	Calcium chloride.....	20	Immediate precipitation.	Immediate precipitation.
5	Calcium bicarbonate...	10	Slight preciptation.	No precipitation.
6	Calcium bicarbonate...	15	Precipitation after 30 minutes.	Precipitation after 12 hours.
7	Calcium bicarbonate...	20	Rapid precipitation.	Precipitation after 5 hours.
8	Magnesium chloride...	10	Immediate precipitation.	Precipitation after 10 hours.
9	Magnesium chloride...	20	Immediate precipitation.	Rapid precipitation.
10	Magnesium bicarbonate.	5	Immediate precipitation.	Precipitation after 1 hour.
11	Magnesium bicarbonate.	10	Immediate precipitation.	Rapid precipitation.
12	Magnesium bicarbonate.	20	Immediate precipitation.	Immediate precipitation.

(To be continued)

THE PRESERVATION OF DECAYING WOOD ROOFS*

By Wendell S. Brown, of F. P. Sheldon & Son, Providence, R. I.

A roof is a cover of a building, according to one dictionary definition. But unfortunately, since the advent, in buildings of home-made weather, either in the form of artificially high or naturally high relative humidities—due to some necessary process—a roof must have other attributes than covering only, if it is to act as a real shelter. For, under certain conditions instead of constituting a protection, the reverse is true, and the roof becomes a positive source of trouble. This happens when the formation of condensation (commonly called sweating) on the ceiling is so rapid as to cause dripping into the room below, with consequent annoyance to the occupants and often serious damage to machinery, building, and materials in process.

Happily it is a comparatively simple matter, by adopting suitable insulation, to prevent the formation of condensation on, and dripping from, the under surface of the roof, for any usual condition encountered. That is, theory and laboratory tests, authenticated by actual installations, have provided accurate methods for rationally designing many different types of roofs to meet varying requirements as to relative humidity and temperature carried in the room below.[1]

But with respect to wood roofs, prevention of visible condensation is only part of the story, for the reason that cracks between the plank afford a more or less direct channel by which warm, moist air from the room below reaches the roofing paper, which latter is practically at the temperature of the outside air. If this temperature is below the dewpoint of the said contacting room air, precipitation of moisture or condensation results; which means nothing more nor less than that the first ply of roofing paper and the top of the wood roof itself are, in temperate or colder climates, saturated with water during the greater part of the heating season. Laboratory tests and the experience of those who have removed old mill roofs bear this out.

In fact, this rot-inducing feature is the outstanding bugbear and cause of excessive mortality in wood roofs of those manufacturing buildings—such as textile mills, finishing plants, paper mills and food factories—which utilize or by nature house high relative humidities. The damage is enormous—greater than generally realized—amounting to hundreds of thousands of dollars annually in building material alone, and occasioning often more serious loss in production as well as general derangement. Many such unenviable records exhibit useful roof lives as short as three years, with a possible average of ten years and a maximum of twenty-five years, depending upon the severity of atmospheric conditions within and without the buildings, and the species and quality of lumber used.

Notwithstanding the subject under consideration is the preservation of old wood roofs, it would be remiss not to admit that some of them are not worth saving. The correct determination of whether or not a roof is worth saving lies in a full consideration of the problem from a purely utilitarian viewpoint, and this paper aims to indicate general principles by which this often debatable question may be settled, and also to describe one method by which the desired result has apparently been attained.

General Theory of Wood Decay

It is fitting, first, to briefly review the general theory of wood decay, its causes, viability, and effect.

The almost exclusive cause of decay in wood is the destroying action of certain fungi, of which there are several varieties. These, however, in order to accomplish their destructive work, must have a favorable environment, which, in addition to suitable media in the form of wood fiber from which their food supply may be obtained consists of the proper amount of moisture, temperature and air supply. There are two general classifications of such fungi:

1. The "dry rot" group, thriving in a comparatively narrow range of cool to moderate temperatures and not requiring great amounts of moisture.
2. The "damp rot" or "mill roof" group, thriving over wider and generally warmer temperature ranges, but requiring relatively large amounts of moisture for their normal development.

As indicated in the name, we are concerned particularly with the second group, which requires either air at practically 100 per cent relative humidity or a free supply of water in its liquid state. Incidentally, since air is necessary for fungus growth, the presence of water to such an extent as to prevent admission of air to the wood cells is fatal.

Wood roofs over buildings housing ordinary temperatures and humidities lack only one requirement to make them excellent media for infection and decay from the second group. This one deficiency is moisture, which, in the case of those special roofs under consideration, is supplied by condensation.

There are perhaps half a dozen varieties of fungi most commonly found attacking mill roofs, and the limits of temperature and moisture most favorable to their development vary somewhat with the species. Many investigators, both here and abroad have devoted considerable study to the classification of fungus diseases, and the conditions affecting their germination, dissemination, and subsequent development and viability. For instance it has been found that the temperature at which most of the mill roof fungi grow and spread lies between the approximate limits of 35 deg. fahr. and 110 deg. fahr., the optimum limits for developments being considerably narrower than the above—approximately 75 deg fahr. to 100 deg. fahr. Alternate wetting and drying is destructive to the spores cast off by certain fungi; and some varieties develop best in darkness, while others require diffused light, but not direct sunlight.

We have seen that the "mill roof" *mycelium*, or fungus organism in its vegetative stage, requires considerable moisture for normal development, this moisture being supplied, in the case of decaying wood roofs, by water condensed from the humid room air as the latter circulates between, and is chilled by, relatively cold roof surfaces. That is the temperature of the under surface of the roof plank is somewhat lower than the room temperature; the temperature of the outer surface of the roof plank is slightly higher than the outdoor temperature; and the temperature, at points within the plank itself, decreases about uniformly between these limits. When the temperature of the surfaces within the roof is lower than the dewpoint corresponding to the relative humidity and temperature of the contacting room air, condensation collects, and it is evident that this may occur either visibly on the underside of the roof or only within the thickness of the roof plank, depending upon the said temperatures. In either case precipitation of moisture occurring in cold weather will be most active as the outer surface of the roof is approached. Undoubtedly, the presence of water, in varying amounts, starting at the plane where condensation begins and ending at the plane of its maximum occurrence, provides, for a time, somewhere over this range the proper amount needed for fungus infection and growth.

Ordinarily, decay in roof plank starts at the top surface, especially if the first ply of paper is dry sheathing not

Technical Section, Page 198

[1] See original paper on this subject by F. P. Sheldon & Son, Engineers and Architects, Providence, R. I., entitled "Experiments to Determine the Relative Effectiveness of Various Types of Roofs in Preventing the Formation of Condensation upon their Under Surface," read before National Association of Cotton Manufacturers, 102nd Annual Meeting, Boston, Mass., April 25, 1917.

* Presented at the Springfield Regional Meeting of The American Society of Mechanical Engineers, Springfield, Mass., September 25-27, 1922.

XUM

mopped down. Sometimes, however, infection seems to get a foothold first just above the tongue and groove or spline and progresses more rapidly in the central portion of the plank lying between the two extremes of moisture.

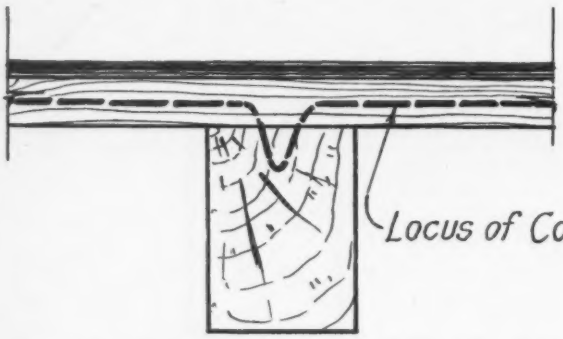
In sawtooth buildings, valley plank usually decay first, this being generally traceable to one or more of the following contributory causes:

a Since sawtooth lighting areas usually face approximately north, the valleys are considerably shaded by adjacent sawteeth, which latter intercept the warming effect of the direct solar rays when the sun is at low altitude during the heating season.

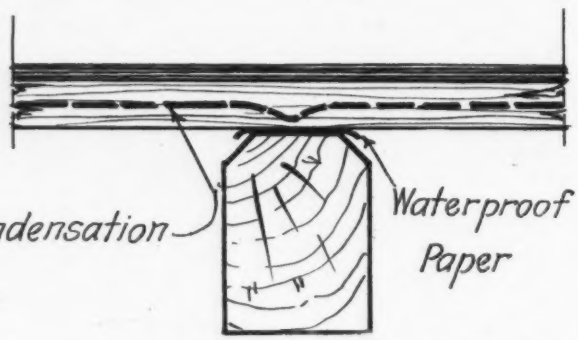
b Often heating coils are located solely under the glass or at some distance up the wooden back of the sawtooth, leaving the valley portion chilled, and subject, therefore, to excessive condensation.

c There is a tendency for moisture or condensation to drain toward the low point of the roof.

An indication of the comparative extent to which rotting has progressed in various portions of a roof may often be had from the brown extractive matter deposited in rusty streaks on rafters and plank. Decay is usually greatest in plank and beams at bearings because, due to the additional insulating properties of the supporting members, the locus of condensation[1] dips as indicated in Fig. 2. Tops of roof rafters and girders rot first—usually for the same reason; and other conditions being equal, decay is more active in the vicinity of ventilators, cold conductor pipes, etc.



SHOWING HOW LOCUS OF CONDENSATION DIPS OVER A BEAM OR RAFTER



SHOWING HOW LOCUS OF CONDENSATION MAY BE RAISED BY CHAMPERING CORNERS OF BEAM OR RAFTER

But the quality of lumber as well as species is also a vital factor in its longevity, and variations in the former often tend to upset too close generalizations concerning the placement of decay. For instance, three years ago two bays of roof plank and one roof rafter in a Rhode Island weave shed were replaced with entirely new but unsuitable material having a high percentage of sap wood. The plank is already more than one-half rotten and is in a worse condition than the remainder of the roof which is thirteen years old.

Methods Employed in Preserving Wood Roofs

Taking up the question of treatment, there seems to be no practicable means for preventing exposure to infection, or of eliminating rot-inducing conditions, so far as temperature alone is concerned.

In case of new wood roofs antiseptic treatment is possible, and several processes, such as creosoting and kyanizing, may be adopted for the preservation of plank. One creosoting concern has recently introduced a priming paint and claims that it is not penetrable by creosote, thus making possible the application of white ceiling paint directly without sheathing. Girders and beams may be made of steel, but if untreated timber is used the upper edges of the beam may be chamfered and covered with a layer of waterproof paper, as shown in Fig. 3. Chamfering tends to raise the locus of condensation, and the paper still further assists in keeping the top of the beams dry.

In the case of existing roofs, which is the subject under consideration, the treatment must of necessity be ameliorative rather than preventive or curative; and it should be clearly understood that the term "preservation" is meant to indicate merely the economic postponement of ultimate roof renewal and not the attainment of permanency. Briefly, the treatment consists in removing from the fungus its water supply by preventing condensation so far as is practicable. And condensation is decreased by insulating the outer roof surface, the extent of inhibition depending upon the amount of insulation.

There are certain inherent limitations to this treatment which prevent the full attainment either of water-supply removal or sterilization. First, it is impracticable on account of excessive initial expense to place sufficient insulation to prevent wholly condensation within the roof plank even in moderately cold winter weather. Second, certain fungi are suspected of having a faculty—once they are well developed—of manufacturing water to a limited extent through a decomposition of the wood structure itself, provided said decay is deep seated and protected from too rapid evaporation. That is, water in its liquid state is not absolutely necessary for their maintenance. The important characteristic of this treatment is therefore a retarding action accomplished by making the environment as unfavorable as practicable.

Top insulation has the effect of moving the plane or locus of condensation for any given set of atmospheric conditions nearer the outer surface of the plank than before, and in mild weather of eliminating it entirely. In other words, the rate of condensation is reduced, as is also its duration, resulting in checking inroads of disease already established, and also in lessening the susceptibility of timber to further infection.

Insulation should be in sufficient amount to entirely prevent condensation on the underside of the roof in most severe weather, and if wood, should itself be antiseptically treated. Creosoted yellow-pine boarding nailed to furring strips has been found to be an economical type of insulation. Cheap, open-grained lumber, preferably sap wood, should be used, since it readily absorbs the necessary amount of wood preservative. By laying it over furring strips, additional and especially effective insulation in the form of an air space is obtained. This type of insulation also adds materially to the strength of the roof plank; in fact, it may be made thick enough to support the old plank if the latter have become seriously weakened, and the importance of not interrupting production is paramount. The old plank, where dangerously decayed, would then be spiked to the new plank from below.

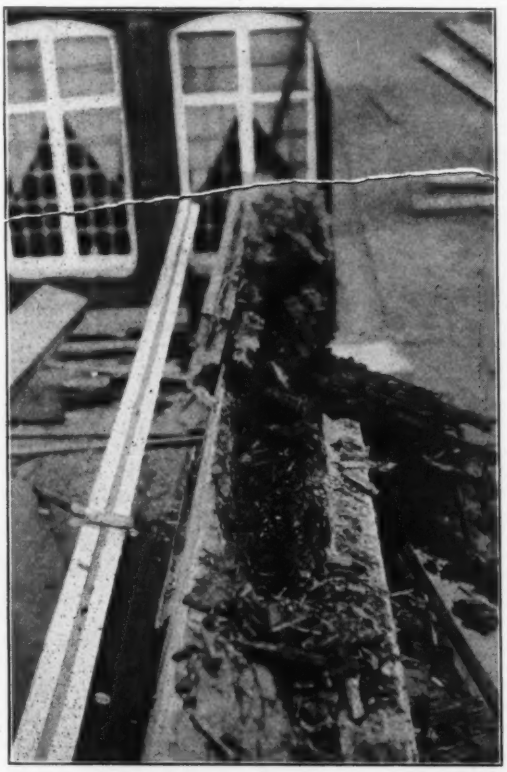
In order to prevent entrance into the new insulating air space

[1] "Locus of Condensation" may be defined as a plane whose temperature equals the dewpoint temperature of the contacting room air. Below this plane no condensation takes place; above it, condensation occurs with increasing activity as the top surface of the roof is approached.

of warm, humid air from the room below (and therefore condensation which would otherwise occur within the upper insulating deck and would drip upon the lower untreated plank), it is necessary to have a waterproof membrane between the old roof and the new insulation. The old roofing paper may be left intact and used for this purpose, if practical. On one large weave shed the new insulation was laid directly on the tar-and-gravel roof without removal of gravel, except what could be easily brushed off. If considerable renewal becomes necessary, however, it will generally be found advisable to remove the roofing paper entirely, and after necessary replacements have been made, to lay down a two-ply roof over the same before applying the insulation.

An economic consideration of the question often shows that the additional insulation saves enough heat to help very materially in meeting fixed charges on the initial cost of installation. This is illustrated later. Furthermore, dripping from the ceiling, which may have been experienced previously, will be stopped.

Sometimes it is advisable to rearrange the heating system so as to obtain a more even distribution. In sawtooth buildings a portion of the coils should be placed under the plank and a portion under the glass, the object being to obtain a balance (that is, as little circulation of air as possible directly under the sawteeth) and thus maintain a uniform and somewhat higher temperature here, without, however, increasing the room temperature on the working plane. The effect is to decrease still further the rate of



SHOWING TYPICAL DECAY IN YELLOW PINE GIRDERS

condensation within the old roof and the number of days of its occurrence during the year.

The most recent installation with which the author is familiar was completed a month ago under the direction of F. P. Sheldon & Son, Engineers and Architects, with which firm he is connected. The building was a sawtooth weave shed having a projected roof area of 116,000 sq. ft.

The weave shed is now twenty-three years old, and during the past ten years considerable portions of the roof have been replaced. For humidity, during approximately the first twenty years, it depended upon the admission of moist basement air through belt holes in the floor at each individual loom, the basement being traversed by a canal and containing more or less standing water. Recently, mechanical humidifiers were installed with the intention of maintaining a more constant relative humidity (approximately

SHOWING TYPICAL DECAY IN ROOF PLANK STARTING AT TOP SURFACE

75 per cent) than was before possible. The humidifier installation probably has accelerated roof decay somewhat, but, on the other hand, the basement may now be properly ventilated, and the present ravages of decay in floor plank, beams, and columns prevented, or at least materially retarded.

Sixty per cent of the roof plank was so rotted as to need renewal. Two per cent of the 6 in. by 12-in. yellow-pine rafters, and 25 per cent of the 11-in. by 14-in. yellow-pine girders were replaced for the same reason. The good condition of the rafters is worth noting and is doubtless due in part to their narrowness, which tended to keep the locus of condensation high—See Fig. 3.

The technique in this particular instance was briefly as follows:

The insulation consisted of ⅞-in. square-edged, creosoted yellow-pine boarding nailed on ⅞-in. creosoted furring pieces, resulting in a ⅞-in. air space between the old roof and the new boards. The lumber was treated on the job by the hot-dip process, being unloaded direct from the cars to a storage pile within 40 ft. of the creosoting tank, which latter was of steel, 20 ft. long, 7 ft. wide and 5 ft. deep, and had ample capacity for 3,000 ft. B. M. of lumber used daily. Boards were stuck with 6-in. pieces every six boards and were divided into two sections for a given charge, each section fastened with a cable sling. An A-frame derrick made of two 50-ft. telegraph poles was used for lifting the sections into the tank. This derrick also was used in removing batches from the tank and hoisting them to the weave-shed roof. Heavy timbers were used to ballast the lumber being treated, and these were taken to and from the tank on a carriage moving on rollers, and were lifted from it by the derrick. A batch, after being lifted out of the hot creosote, was held over the tank and allowed to drain for three or four minutes. It was then hoisted to the roof, after which practically no more dripping occurred; the partial vacuum set up by the air and steam in wood cells, cooling, contracting and, therefore, sucking in the excess surface oil.

The creosote oil used on the job was furnished in a tank car placed on a siding some 300 ft. from and considerably above the creosoting tank, thus allowing a gravity flow in the pipe line connecting the two. Make-up oil was added each time a batch was removed, except that toward the end of the creosoting process,

TECHNICAL SECTION, PAGE 200

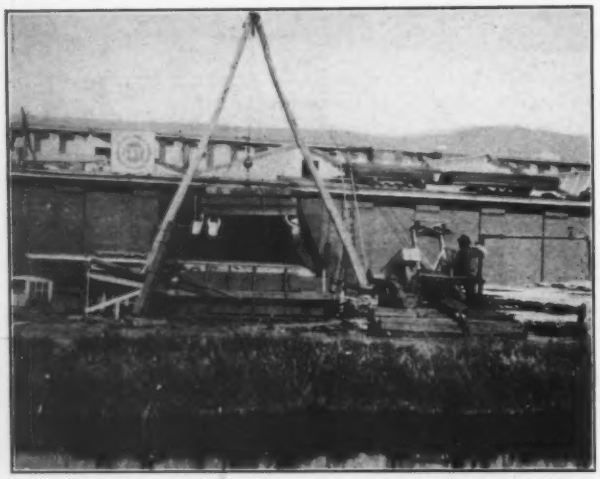
XUM

after all the oil had been placed in the tank, the amount of lumber per batch had to be gradually reduced. During treatment the oil was held at a temperature of about 230 deg. fahr. by means of high-pressure-steam coils having a total heating surface of 270 sq. ft., placed in the bottom of the tank. A tarpaulin was kept over the tank as protection from the weather, and also to retard somewhat losses by evaporation. Accidental admixture of much rain water, on account of its lower boiling point, was found to cause serious foaming.

The use of wet or unseasoned wood was found not to be detrimental, except for the fact that it had to be kept in the hot creosote for a longer time in order to insure thorough penetration by first boiling out the entrained water.

The creosote oil used was a modification of Grade 1, American Railway Association Specification, having a specific gravity at 59 deg. fahr. of at least 1.08, and giving, when distilled, no distillate below 392 deg. fahr., not more than 1 per cent below 410 deg. fah., and not more than 10 per cent below 455 deg. fahr.

The penetration was quite thorough, the amount of oil used averaging 9.4 lb. per cu. ft. for a 20-hour treatment. The creosote cost $0.29 per gal. delivered, which, reduced to a board measure basis, added $0.022 to the unit lumber cost of $0.03, and made a total of $0.06 per board foot for treated boards—labor and overhead for treatment included, but not laying. The labor of laying on roof amounted to about $0.02 per ft. B. M.



SHOWING NEARER VIEW OF DERRICK AND CREOSOTING TANK

Where plank were rotted at bearings, but fairly sound elsewhere, new bearing strips were spiked to each side of the rafter for necessary support.

Not more than one sawtooth for half its length was opened up at any one time with consequent interruption to only that machinery under this particular section. This usually amounted to less than eighty looms for a period not over nine or ten hours.

Economic Considerations in Prolonging the Useful Life of Repaired Roofs

Consideration of the problem from the standpoint of economics shows, for this particular building, if the given insulation prolongs the useful roof life no more than *five* years, that it was warranted and preferable to an entirely new durable roof. Each additional year of life is therefore a net gain, as is also the very real and important (but in this case uncapitalized) saving due to substantially postponing the period in which greater interruption to manufacturing, incident with entirely new roof construction, would occur. The solution was based on the following approximate assumption made after the necessary study of existing conditions:

1. Regardless of building decay, the felt-and-slag roof, on account of its age and conditions, would have required replacement within one year at an estimated cost of $17,000.

2. If decayed members in need of immediate renewal were merely to be replaced by new, without the insulation feature, it was estimated that equal replacements would again be necessary within fifteen years.

PROBLEMS Determine the minimum number of years by which the given insulation must prolong the useful life of the repaired roof in order to prove a financially sound investment, and preferable at this time to an entirely new durable roof.

a The cost of the project was approximately as follows:

Insulation, i. e., creosoted plank in place, including extra two-ply waterproof membrane	$18,000
Felt and slag roofing	17,000
Necessary renewals of plank, rafters, and girders, removal of old roofing, painting, etc	28,000
Total	$63,000

b The minimum cost of an entirely new and durable treated wood roof on yellow-pine rafters and steel girders, including painting, complete erection, etc., was estimated at $110,000.

Working out several trial examples, it is found that the said insulation in order to be justified should add at least *five years* to the useful roof life. Sample computations follow.

(1) The approximate 20-year cost of a repaired roof ***with insulation*** (that is, the cost over its augmented useful life of 15 + 5 = 20 years) may be calculated as follows:

Initial cost (wholly depreciated)	$63,000	
Yearly interest at 6% = $3,780, having a value in 20 years if compounded annually at 6 per cent of	139,000	
		$202,000
150 tons of coal saved annually at $7 per ton = $1050, having a value in 20 years if compounded annually at 6 per cent of		39,000
Total 20-year cost		$163,000

It is worthy of note that the insulation saves annually in coal 1,050/18,000 or 6 per cent gross of its cost and vitally affects the computations by reducing the number of years by which the said insulation must lengthen the roof life in order to be justified.

(2) The approximate comparative 20-year cost of repaired roof ***without insulation*** is as follows:

Cost of repairs good for 15 years and then wholly depreciated, $17,000 for roofing plus $28,000 for replacements	$45,000
Yearly interest at 6 per cent = $2,700, having a value in 20 years if compounded annually at 6 per cent of	99,000
Cost of equal repairs 15 years hence (probably reduced to $30,000), depreciation at 5/15	10,000
Yearly interest at 6 per cent = $1,800, having a value in 5 years if compounded annually at 6 per cent of	10,000
No coal saved	.....
Total 20-year cost	$164,000

(3) The approximate comparative 20-year cost of a new and durable roof having an assumed life of forty years is obtained in the following manner:

Initial cost, $110,000, depreciation at 20/40	$55,000	
Yearly interest at 6 per cent = $6600, having a value in 20 years if compounded annually at 6 per cent of	242,000	
		$297,000
100 tons of coal saved annually at $7 per ton = $700, having a value in 20 years if compounded annually at 6 per cent of		26,000
Total 20-year cost		$271,000

Conclusion

While it is realized that the foregoing assumptions concerning future prices are conjectural, there is apparently ample margin in the result to show the described treatment to be, in this case, an economical procedure. This factor is especially emphasized when the avoidance of serious interruption to production, which would have attended entirely new construction, is considered; as well as the fact that dripping from the ceiling, which occurred previously during severe winter weather, is prevented.

Several other decayed wood roofs have been similarly insulated within the past three or four years with apparently beneficial results, so that this treatment has passed beyond the purely theoretical or experimental stage.

It is easy for an engineer to recommend sweepingly entire roof renewal with more permanent material, such as concrete, treated plank, redwood, etc., as the only satisfactory solution of a given problem but the correct answer is ordinarily found only after careful analysis, and evaluating and balancing every factor pertaining to each individual case. Each situation has its own especial features which should be critically examined; and to an executive

considering ultimate costs, the question of maintaining production is often of greater weight than building economics pure and simple.

The tremendous damage caused by "damp rot" which is progressing insidiously in many industrial plants today, should be brought to light and more fully realized. In some brick buildings with wood roofs disintegration has occurred amounting in three years to one-quarter the value of the structure; other buildings entirely of wood have been practically a total loss above the foundations in the same time. Even less rapid depreciation instanced in the more normal example given has more than a merely local effect. Besides handicapping the mill itself, and being reflected in the cost of goods to consumers, such losses must ultimately have an appreciable effect upon international trade, and are intolerable if this nation is to enter into forward-looking competition in world markets. Plainly, damp rot constitutes one affliction of which our modern industry must purge itself if the United States is to play its rightful part with increasing service as a great vital and industrial nation.

SULPHATE OF ALUMINA IN THE SIZING OF PAPER*

By F. M. Bouvier

Various theories have been put forward to explain the mechanism of engine sizing, but unfortunately none of them are entirely satisfactory. Vauquelin attributes sizing to aluminum resinate produced by the action of sulphate of alumina on rosin size. On the other hand, Würster, who considers free rosin as the sizing agent, writes: "Alumina has a merely accessory function"; but this is not borne out in practice. We here have two diametrically opposite theories: as is often the case, the truth is probably to be found by striking a happy medium.

The paper sized by the methods actually used in paper mills contains both free and combined rosin, as can be clearly shown by analysis. As is well known, free rosin is soluble in ether, alcohol, and other organic solvents, while aluminum resinate is soluble in ether but not in alcohol. If we extract a sample of sized paper with ether, evaporate off the solvent, and ash the residue, we shall obtain an ash consisting of alumina. Extraction with alcohol under the same conditions will not give any alumina, as aluminum resinate is insoluble in alcohol. These results show that the paper contains both free rosin and aluminum resinate, and quantitative determinations show that about 50 to 70 per cent of the total rosin is in the free state, depending on the composition of the size used. Generally speaking, it may be said that on adding sulphate of alumina to the beater, one-third of the combined rosin of the size is set free, the remaining two-thirds combining with alumina. Consequently, the free rosin found in the paper consists of:

(1) The free rosin held in suspension as such in the size;

(2) Rosin liberated by the action of sulphate of alumina on the combined rosin of the size.

By means of these data, and taking into consideration the composition of the water used in the manufacture of the paper, the theoretical amount of sulphate of alumina required to size a paper under given conditions can readily be calculated.

Suppose we wish to size a 200-kilo beater of rag pulp with 3.5% of free rosin, and that we have:

(1) A size prepared by treating 100 kilos of rosin ($C_{20}H_{30}O_2$) with 9 kilos of soda ash;

(2) A sulphate of alumina having the following composition:

$Al_2(SO_4)_3$	80%
Free sulphuric acid	0
Moisture	15
Impurities	5
	100%

It is assumed that on adding the alum to the beater, only one-third of the combined rosin is precipitated as free rosin, the remainder being converted into aluminum resinate.

The consistency of the stock in the beater is 8 per cent and when it reaches the paper machine 0.8 per cent.

The composition of the water used is:

$CaCO_3$	0.0521 g. per l.
$MgCO_3$	0.0061
Chlorides (as NaCl)	0.0048
Sulphates (as Na_2SO_4)	0.0034
SiO_2	0.0408
$Al_2O_3 + Fe_2O_3 + MnO_2$	0.0126
Organic matter	Trace

We wish to calculate the amount of aluminum sulphate which should be added.

When water is neutral, 70 g. of sulphate of alumina ($Al_2(SO_4)_3 - 18H_2O$) must be added per cubic meter to make it acid to litmus paper.

In the preparation of the size the following reaction takes place:

$$\underset{604}{2C_{20}H_{30}O_2} + \underset{106}{Na_2CO_3} = \underset{648}{2C_{20}H_{29}O_2Na} + CO_2 + H_2O.$$

This shows that 106 parts of soda combine with 604 parts of rosin. As we use 9 kilos of soda, the amount of rosin which combines with it is $9 \times \frac{604}{106} = 51.3$ kilos. The amount of free rosin which dissolves in the sodium resinate is therefore $100 - 51.3 = 48.7$ kilos.

On adding the sulphate of alumina, one-third of the combined rosin is liberated, which will be $51.3 \times \frac{1}{3} = 17.1$ kilos. Hence, if we start out with 100 kilos of rosin, 65.8 kilos of this will be present as free rosin in the beater after adding the alum.

As we wish to size with 3.5% of free rosin, we must add $200 \times .035 = 7$ kilos of free rosin to the beater; so that we must take an amount of size containing $7 \times \frac{100}{65.8} = 10.7$ kilos of total rosin. To find out what volume of size milk is required, we must first analyze it to determine how much rosin it contains. Suppose the total rosin content is found to be 32 grams per liter. Then we must add $\frac{10{,}700}{32} = 335$ liters.

Of the 10.7 kilos of total rosin added, $\frac{10.7 \times 51.3}{100}$ is combined with soda.

On adding the alum to the beater the rosin will react according to the equations:

$$\underset{648}{2C_{20}H_{29}O_2Na} + \underset{342}{Al_2(SO_4)_3} + H_2O = 2C_{20}H_{30}O_2 + Na_2SO_4 + 2AlSO_4OH \quad (1)$$

$$\underset{1944}{6C_{20}H_{29}O_2Na} + \underset{342}{Al_2(SO_4)_3} = (C_{20}H_{29}O_2)_6Al_2 + 3Na_2SO_4. \quad (2)$$

The amount of rosin reacting according to (1) will be

$$\frac{10.7 \times 51.3}{100} \times \frac{1}{3} = A$$

while the amount reacting according to (2) will be 2A.

Technical Section, Page 202

*Translated from *Le Moniteur de la Papeterie Française*, liii, No. 4, pages 99-100, February 15, 1922, by A. Papineau-Couture.

According to the equation for the reaction of rosin and soda, 302 grams of rosin give 324 grams of sodium resinate, to that A grams of rosin are equivalent to $A \times \frac{324}{302} = B$ grams of sodium resinate.

Hence

$$B = \frac{10.7 \times 51.3 \times 324}{100 \times 3 \times 302}$$

The amount of alum required for reaction (1) is given by

$$X = B \times \frac{342}{648} = 1{,}036 \text{ grams},$$

and the amount required for reaction (2) is given by

$$Y = 2B \times \frac{342}{1944} = 691 \text{ grams}.$$

There still remains to find out how much alum reacts with the water.

The total volume of water to be considered is $\frac{200{,}000}{8} = 25{,}000$ liters, and it contains $0.0521 \times 25{,}000 = 1{,}302$ grams of $CaCO_3$ and $0.0061 \times 25{,}000 = 152$ grams of $MgCO_3$.

With $CaCO_3$ the reaction is

$$3CaCO_3 + Al_2(SO_4)_3 = 3CaSO_4 + Al_2O_3 + 3CO_2$$
$$300 \qquad 342 \qquad\qquad 342$$

requiring $Z = 1{,}302 \times \frac{342}{300} = 1{,}485$ grams of sulphate of alumina;

and with $MgCO_3$ it is

$$3MgCO_3 + Al_2(SO_4)_3 = 3MgSO_4 + Al_2O_3 + 3CO_2$$
$$252 \qquad 342 \qquad\qquad 342$$

requiring $T = 152 \times \frac{342}{252} = 206$ grams.

In order to make the water acid to litmus, we must add a further $25 \times 70 = 1{,}750$ grams of $Al_2(SO_4)_3.18H_2O$ (molecular weight 666), corresponding to $U = 1750 \times \frac{342}{666} = 898$ grams of $Al_2(SO_4)_3$.

The total weight of pure $Al_2(SO_4)_3$ required is therefore

$$P = X + Y + Z + T + U = 1036 + 691 + 1485 + 206 + 898 = 4{,}316 \text{ grams}.$$

The alum used in this particular instance contains only 80% of pure $Al_2(SO_4)_3$, so that the weight actually required is

$$\frac{4{,}316 \times 100}{80} = 5{,}395 \text{ grams}.$$

Knowing the per cent of free rosin used, it is interesting to calculate what should be the total rosin content of the paper, and we shall do it, using the data found in the preceding example.

Let x be the per cent of total rosin. We have shown that in the milk we have 51.3% of combined rosin, of which one-third will be set free, and 48.7% of free rosin.

We can therefore write down the equation

$$3.5 = (x \times 0.487) + \left(\frac{x \times 0.513}{3}\right)$$
$$= x(0.487 + 0.171)$$

Whence $x = 5.3\%$.

The paper therefore contains $5.3 - 3.5 = 1.8\%$ of rosin in the form of aluminum resinate.

The accuracy of these theoretical results can readily be verified analytically.

It is only by means of systematic analyses of papers sized under various conditions that an insight into the mechanism of the process can be obtained.

TECHNICAL SECTION, PAGE 203

Addition to Registration List at Detroit Meeting

[FROM OUR REGULAR CORRESPONDENT]

In addition to the names listed in last week's *Journal*, the following were registered at the fall meeting of the Technical Association in Detroit:

W. H. Artz, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.
Hubb Bell, U. S. Testing Company, New York.
G. N. Collins, Dill & Collins, Philadelphia, Pa.
A. S. Cosler, Texas Gulf Sulphur Company, Chicago.
J. F. Davis, J. F. Davis & Sons, Chicago.
A. Scott Dowd, *Paper Industry*, Chicago.
H. W. Gochnauer, Northern Paper Mills, Green Bay, Wis.
K. T. King, E. I. du Pont de Nemours & Co., Inc., Chicago.
R. F. Kohs, Detroit, Mich.
W. G. MacNaughton, T. A. P. P. I., New York.
W. R. Maull, Dill & Collins Company, Philadelphia, Pa.
Eugene Mueller, Bureau of Standards, Washington.
Maurice Neilson, Belgo Paper Company, Shawinigan Falls, Que.
A. T. Randall and W. W. Spratt, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.
R. S. Todd.
Prof. A. H. White, University of Michigan, Ann Arbor, Mich.
J. L. Williamson, J. O. Ross Engineering Company, Chicago.

Benzine Substitute from Sulphite Lye

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 18, 1922.—The American Consul General at Stockholm has sent an interesting report to the Department of Commerce regarding a probable substitute for benzine to be derived from the sulphite lye from wood pulp mills. In his report to the Department the Consul General says:

"A probable substitute for benzine is now being manufactured in Stockholm by a well known concern. The manufacturer claims that sulphite spirit extracted from the sulphite lye of the wood pulp mills, mixed with 20-25 per cent of benzol makes an excellent motor fuel.

"A number of wood pulp establishments in 1918 began to manufacture sulphite spirit as a by-product and by the end of that year, 15 factories were turning it out in very considerable quantities of an average spirit strength of 95 per cent. The capacity of these factories in 1919 was about 10,000,000 kilos. It is proposed to refine this spirit and put it on the market as a beverage provided the Riksdag will enact the necessary legislation—but such result hardly seems to be probable."

Conditions in French Paper Industry

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 18, 1922.—Although the quotation of lower prices on paper in the Norwegian market at Christiania is causing French producers much worry, there are very few machines idle in the French factories, and the French paper industry has been working at about 90 per cent of normal, according to advices received by the Department of Commerce from Vice Consul Corcoran at Boulogne-sur-Mer.

Since the introduction from the French colonies in North Africa of alfa grass, as a raw material in the production of paper, the French paper-making industry has been able to compete with foreign manufacturers, and it has been the opinion until now that this raw material close at hand would offset the conditions which enable the Scandinavians and others close to the wood pulp centers of the world to seriously enter the French market.

Lockwood's Directory of the Paper and Allied Trades for 1922-23 is now ready. To assure yourself of a copy you should order at once.

XUM

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Properties, Chemistry and Testing of Raw Materials and Finished Product

Pulp from Reeds and Straws.—L. B. Von Ordody and B. Schottik & Co. Ger. Patent 345,401, July 14, 1918. Addition to Ger. patent 285.539. The plants are cut into strips about one meter long. The leaves are detached, steeped in water for about 21 to 30 days, dried and steeped again, and then subjected to a swelling treatment by placing them in an autoclave and treating with caustic alkali of about 0.6° to 1° Bé strength at a pressure of about 3 to 4 atmospheres for one to one and a half hours. The material is then treated with acidified water and cooked once or twice with fresh water. The fibers are washed with cold water and treated further in accordance with the process described in the principal patent.—I. G.

Determination of Moisture in Bales of Wood Pulp.—Uno Albrecht. *Pappers-Travaru Industritids. Finland,* i, Nos. 16 and 18, (Sept. 1 and 30, 1921). The French, English, and Finnish methods are encumbered with too many details and sources of errors. The author proposes a simpler method, whereby the samples are taken from a perpendicular line running from the base to a point near the center, the bale being considered as a rhombus instead of as a square in which a symmetrical distribution of moisture might be assumed. The perpendicular represents the average moisture in the bale.—P. B.

The Preparation and Properties of Cellulose Solutions.—P. Waentig. *Papierfabr.,* xx, 359-361 (March 26, 1921). Solutions of viscose do not change as rapidly, when properly prepared, as cuprammonium solutions. Cellulose is very sensitive to changes in bleaching conditions (temperature and concentration of liquor), and to treatment with acids and bases. Treatment of cellulose in the cold with strong lyes produces sharp changes in the conditions of solubility. When the cellulose is cooked in dilute alkali, the viscosity of the viscose solution is increased, contrary to what happens with cotton. In order satisfactorily to explain the changes in the viscosity of the cellulose solution cognizance must be taken of changes of a colloidal nature which occur in cellulose as well as those of a purely chemical nature. The difference in behavior between the two is explained as follows: The cotton fiber consists of molecular complexes of approximately equal magnitudes and the cellulose fiber of molecular aggregates of varying magnitudes. In boiling with dilute alkali the higher aggregates in both fibers are broken down. In the case of the cellulose fiber the small aggregates are dissolved out, and the latter process has a preponderating influence on the properties of the cellulose solution.—I. G.

Comparison of Wood Cellulose and Cotton Cellulose.—S. A. Mahood and D. E. Cable, Forest Products Laboratory, Madison, Wis. *J. Ind. Eng. Chem.,* xiv, 727-731, (Aug., 1922). The data given show that the wood cellulose most nearly corresponding to cotton (purified linters is obtained by recooking "easy-bleaching" sulphite with soda and bleaching with 2 per cent of bleach. The main differences between this sample and cotton lies in the amounts of furfural-yielding constituents and gamma-cellulose content. It represents the lowest yield on the original wood. Recooked, raw-cooked sulphite bleached with 3 per cent of bleach does not differ greatly from the preceding and gives 6 per cent larger yield. It is probable that the yield of cellulose suitable for esterifying could be materially increased by giving a light or raw cooked stock a bleaching treatment prior to cooking with soda. Chemically, alkaline cooking produces pulps less similar to cotton than do acid cooking or acid and alkaline cooking. Wood cellulose and cotton cellulose do not represent identical chemical aggregates, nor do wood celluloses obtained by acid cooking and by alkaline cooking. The checking of wood cellulose according to specifications for cotton is a questionable procedure.—A. P.-C.

Chlorinated Cellulose.—Cellulose Et Papiers. Fr. Patent 525,-594. *Mon. Papeterie Française,* liii, 103, (Feb. 15, 1922). Cellulose, oxycellulose, or hydrocellulose, in a finely-divided condition, is subjected to the action of practically dry chlorine gas at atmospheric temperature and pressure, for a length of time varying from 1 to 3 hours. It retains from 1 to 2 volumes of chlorine, and, in contact with air, will retain its chlorine for about 1 day. If protected from air and from light, it can be kept much longer.—A. P.-C.

Forestry

Poplar as a Pulpwood.—Seurre. *Papier,* xxv, 304-305, (July, 1922). A brief discussion of the advantages of the cultivation of poplar as a pulpwood.—A. P.-C.

French Resources of Pulpwoods.—Seurre. *Papier,* xxv, 248-251, (June, 1922). An analysis of the French resources of spruce, pine, aspen, birch, poplar, and eucalyptus, showing that the amount of these woods is sufficient to supply the requirements of the existing French pulp mills without interfering with the requirements for timber.—A. P.-C.

Ground Wood Manufacturing and Equipment

Care of the Pulp Grindstone Surface.—Ralph K. Pratt, Wisconsin River Pulp & Paper Co. PAPER TRADE J., lxxiv, No. 24, 26, (June 15, 1922). Practical pointers on the proper care of grinders so as to maintain the surface in as good condition as possible to obtain maximum production and highest quality.—I. G.

Grinder.—J. M. Voith. Ger. patent 352,625. Same as Can. patent 219,733, June 20, 1922.—I. G.

Grinder.—J. M. Voith. Ger. patent 352,626. In order to avoid lead in the pistons, two rods are provided in the machine, which are connected to the cross-head to which the piston rods are fastened. If one piston tends to move faster than the other, the reduction in the lever arm on one side and the lengthening on the other side equalizes the speeds of the two pistons and brings them back into equilibrium again. The piston cylinders being at a distance from the wood being ground, oil can be used in them without danger of soiling the wood.—I. G.

The Story of Ground Wood Manufacture. A. G. Howland. PAPER TRADE J., lxxiv, No. 15, 45-47 (April 13, 1922). The use of ground wood for papermaking was started in Europe, it is claimed as far as back as 1756, and was introduced in the United States by Pagenstacher more than 50 years ago. Its development is traced since that time.—I. G.

Acid Processes of Pulp Manufacture and Equipment. The Production of Sulphite Alcohol. R. Heinzelmann. *Papierfabr.,* xx (April 2, 1922); 438-443 (April 9, 1922). Translation by C. J. West in PAPER TRADE J., lxxiv, No. 21, 49-51 (May 25, 1922); lxxv, No. 1, 56-58 (July 6, 1922). A discussion of the patent literature on the production of alcohol from sulphite waste liquor covering; (1) preliminary treatment of the liquor before fermentation; (2) fermentation, (3) distillation, and (4) recovery of by-products.—I. G.

Norwegian Process for Precipitating the Organic Matter in Sulphite Waste Liquor.— F. Paul. *Mon. Papeterie Française,* liii, 375 (Aug. 1, 1922). The ligninsulphonic acids are broken down and the lignin precipitated by the action of sulphuric acid under 6 to 7 atmospheres' pressure, the sulphuric acid being obtained by oxidation of the SO_2 present in the liquor.—A. P.-C.

XUM

Process for Obtaining Pulp from Slightly Lignified Plants.—Ger. patent 327,912. The straw is cut, moistened to make it swell, washed with hot water, and treated with a calcium-magnesium bisulphite liquor containing 3 to 4 per cent of total SO_2, of which 50 to 60 per cent is combined. The temperature is brought to about 125°C, held for 3 hours, and finally raised to 150°C.—I. G.

Consumption of Steam in the Cooking and Drying of Sulphite Pulp.—Harry Alfthan. *Papir-Journalen,* ix, No. 15 (Sept. 25, 1922). The consumption of steam during cooking varies with the nature of the pulp, as follows: *easy-bleaching;* dry steam 1,134 kilos per ton of air-dried pulp, dryers 306 kilos, spray 368 kilos, total 1,808 kilos; *strong pulp,* dry steam 1,238, dryers 321, spray 385, total 1,944 kilos. Easy-bleaching thus requires 7.8 per cent less steam than strong pulp, and production is about 4.5 per cent greater (reckoned per hour).—P. B.

Development of the Sulphite Process.—O. L. Berger. PAPER TRADE J., lxxiv, No. 15, 49-53 (April 13, 1922).—I. G.

Alkaline Processes of Pulp Manufacture and Equipment. Sulphate Turpentine. Ossian Aschan. *Pappers-Travaru Industritids. Finland,* i, No. 19 (October 15, 1921). Finnish turpentine, a by-product of sulphate mills, consists of pinenes (50 per cent), of dipentene and sylvestrene (50 per cent). As pinenes boil at 155 to 156°C, and dipentene and sylvestrene at 173 to 176°C, fractional distillation yields a pure pinene turpentine of great technical value and high drying and polishing properties.—P. B.

Treatment of Waste Pulp Liquors.—F. Paschke. Ger. patent 345,192. The liquor is evaporated by making it travel down a stack or tower divided into compartments provided with spiral passages. Hot flue gases enter at the bottom and escape at the top.—I. G.

The Development of the Soda Pulp Industry.—M. L. Griffin. PAPER TRADE J., lxxiv, No. 15, 55-59 (April 13, 1922).—I. G.

The Manufacture of Paper Pulp By the Chlorine Gas (Cataldi) Process.—Umberto Pomilio. *Chimie et Industrie,* viii, 41-45 (July, 1922). Polemical against De Perdiguier, discussing the merits of the Cataldi process (See Pomilio, this Journal (lxxiv, No. 12, 53, March 23, 1922) as compared with the De Vains-Peterson process (See *Pulp and Paper,* xx, 635, July 27, 1922). Poplar and hemp stalk pulps, prepared by the Cataldi process on a commercial scale, were tested at the Italian experiment station and found equal to the best grades of commercial bleached pulps prepared by other processes.—A. P.-C.

Paper Manufacturing and Equipment

The Coloring of Paper.—E. Arnould. *Papier,* xxv, 241-245, 289-293 (June and July, 1922). A general discussion, from a strictly practical standpoint, of the coloring of paper by means of aniline dyes, with numerous pointers on how to obtain best results.—A. P.-C.

The Function of Sulphate of Alumina in the Sizing of Paper.—F. M. Bouvier. *Mon. Papeterie Française,* liii, 99-100 (Feb. 15, 1922). Extraction of sized paper with alcohol removes free rosin, and subsequent extraction with ether removes aluminum resinate. About 50 to 70 per cent of the rosin in the paper is present in the free State, depending on the composition of the size milk. An example is given to show how to calculate the amount of size and of sulphate of alumina required to give a paper containing a given amount of free rosin with water of given composition.—A. P.-C.

Suggestions Regarding Paper Making Felts.—PAPER TRADE J., lxxiv, No. 21, 51 (May 25, 1922). The advantages of standardizing felts to inches in width and feet in length are briefly dwelt upon.—I. G.

Development of the Paper Machine in Fifty Years.—C. E. Kinne. PAPER TRADE J., lxxiv, No. 15, 41-43 (April 13, 1922). Description of the advance made during the last 50 years in the design and construction of the paper machine.—I. G.

The Use and Abuse of Paper Making Felts.—G. H. Harvey. PAPER TRADE J., lxxiv, No. 24, 44-46 (June 15, 1922). A discussion of what should and what should not be done to and with felts so as to obtain maximum service out of them.—I. G.

The Drying of Paper.—PAPER TRADE J., lxxiv, No. 25, 46 (June 22, 1922). An outline of standard data to be used in the calculation of the efficiency of the drying process. A sample calculation data sheet is given.—I. G.

Technique of Water Marks.—*Kartonnagen Papierwaren Ztg.,* xxv, Nos. 33 and 34 (Aug. 13 and 20, 1921). The dandy roll, not being adapted for all the manifold applications of this art, is supplemented by various machines for stamping, cutting, embossing, and molding. Of all water marks, those made on thin smooth or colored papers need the greatest care to render them clear and durable. The up-to-date technique of mottos, figures in relief, engravings, designs, and new patterns on cards, wall papers, and boxes, is also described in detail, together with valuable hints on rules for avoiding waste and loss.—P. B.

Process for Giving a High Polish to Paper.—A. Tiburzi. Fr. patent 526,073. *Mon. Papeterie Française,* liii, 100-101 (Feb. 15, 1922). Also Ger. patent 532,213. The paper is moistened with a 10 to 12 per cent solution of caustic soda or with a 50 to 60 per cent solution of soda ash and calendered.—I. G.

Utilization of Exhaust Steam in Paper Mills.—Saintours-Payerne. *Mon. Papeterie Française,* liii, 268-269, 299-301 (June 1 and 15, 1922). The author briefly discusses the different systems of driving the paper machine and drying the paper, from the point of view of the heat balance.—A. P.-C.

Asbestos Dryer Felts.—*Papeterie,* xliv, 546-547 (June 25, 1922). Brief discussion of their merits.—A. P.-C.

Articles Produced from Pulp and Paper

Properties of Vulcanized or Hard Fiber. Retzow. *Kunststoffe,* xii, 49-53 (1922). Translation by I. Ginsberg in PAPER TRADE J., lxxiv No. 21, 52-56 (May 25, 1922). Vulcanized paper finds applications especially in the manufacture of electrical devices, but also for boxes, trunks, containers, etc. It is made by pressing together layers of paper, with the interposition of such binding agents as shellac, bakelite, and other artificial resins. The most important factor is the pressure. It bears a definite relation to the physical, chemical and electrical properties of the finished product. The specific gravity increases regularly with increase in pressure. The Brinnell hardness depends on both the pressure and the thickness of the sheets, increasing with the pressure and thickness up to a certain maximum. The curves are not smooth but consist of a number of broken lines. Maximum hardness is produced at a pressure of about 150 kilos (about 2,000 lb. per sq. in.). The breaking resistance, using the shock test on a notched sample, depends on the direction of the force. For the surface resistance, dielectric constant and resistance to breaking through of the voltage there is an optimum pressure. The resistance to heat increases as the pressure decreases. The water absorption of the finished product decreases as the pressure and the thickness increase. Of the chemical properties, only the acid resistance was tested, and it was found that the thicker the paper the less the absorption of acid.—I. G.

A Canadian Source of China Clay.—W. M. Goodwin. *Pulp and Paper,* xx, 711-713 (Aug. 24, 1922).—A description of the character, origin and size of the deposits at Huberdeau, Que., of the plant and process used in treating it, and of the quality of the products. A typical analysis of the China clay is: silica 47.50 per cent, iron oxide 1.06, alumina 36.98, lime 0.23, magnesia trace, loss on ignition 14.10, potash 0.19, soda 0.18 per cent. It is pure white; the iron content is lower than that of the best Cornish clay imported into Canada, and the grit content is unusually low being about 0.08 per cent in the form of fine particles of quartz not over 0.05 mm. in size.—A. P.-C.

XUM

Testing the Absorptive Capacity of Spinning Paper for Moisture.—Fr. Herig. *Papierfabr.*, xix, Fest-u. Ausland Heft, 32-34 (1921); *Chem. Abs.*, xv, 2984 (Sept. 10, 1921).—Finely powdered aniline dyes (mahogany red is best but methyl violet is also satisfactory) are sprinkled over the paper (an apparatus is described for arranging this dye in the form of a figure) and the paper is floated on water. When the water penetrates to the dye, the time is taken. Various samples vary in time of penetration from 9 to 123 seconds.—A. P.-C.

Some Easy Practical Paper Tests.—Norman A. Altmann. *Pulp and Paper*, xx, 609-610 (July 21, 1922).—Various simple tests are described which can be carried out without regular laboratory equipment and which give a good idea of the quality of the paper.—A. P.-C.

Tearing Strength of Paper.—S. Wallin. *Svensk Pappers-Tid.*, xxiv, 356-357 (1921); *Chem. Abs.*, xvi, 645 (Feb. 20, 1922).—A hook is substituted for the pan of the balance and the tearing is accomplished by adding weights to the other pan. The author suggests the concept "tear surface," meaning that surface of the paper being tested whose weight is the same as the force needed to tear the paper. He also suggests "longitudinal tear surface," "cross tear surface," and "average tear surface." It is more difficult to get accurate figures for cross tearing than for longitudinal tearing.—A. P.-C. (We suggest that the word "weight" would be better than "surface."—J. N. S.)

Alkali Cellulose and the Composition of Cellulose.—P. Karrer. *Cellulosechem*, ii, 125-128 (1921); *Chem. Abs.*, xvi, 644 (Feb. 20, 1922).—After discussing his earlier work on caustic soda addition compounds with anhydrosugars, the author shows that cellulose in 30 per cent caustic soda forms the complex $C_{12}H_{20}O_{10}$. NaOH (10.69 per cent NaOH); cotton under similar conditions absorbs about 13 per cent caustic soda. This caustic is gradually washed out by water, and in dilute solutions the amount of caustic absorbed is determined by the amount of water present. The author believes that the parent compound of cellulose is cellobiose anhydride and that cellulose should be written $(C_{12}H_{20}O_{10})_x$. From the heats of combustion it is further believed that x is small, probably 2 or 3, which agrees well with the results of Herzog and Jancke who conclude that cellulose is $(C_6H_{10}O_5)_4$. Partial valences are probably responsible for the union of the anhydro-sugar molecules.—A. P.-C.

Forestry

Essay on Forest Conservation.—P. Swanson. *Pulp and Paper*, xx, 689-692 (Aug. 17, 1922).—A discussion of the forest situation in Canada with suggestions as to the proper steps to ensure a permanent adequate supply of wood. Fire prevention measures should be along the lines of a strict enforcement of the permit system of slash burning, permit system for hunters, prospectors, etc., close and efficient inspection of smoke-stack screens of engines operating in wooded districts, and improvement of the fire-ranging system. Careful and rigid inspection should be enforced to detect and check ravages from insect pests. A high export tax on fee-land wood is advocated, to prevent exportation.—A. P.-C.

The Forests and Forestry of Finland.—Lauri Ilvessalo, Helsingfors University. *Mo. J. Bank of Finland; Pulp and Paper*, xx, 625-626 (July 27, 1922).—A sketch of the forest resources, their exploitation and care, and of the export of forest products.—A. P.-C.

Acid Processes of Pulp Manufacture and Equipment

Tanning Material from Sulphite Waste Liquor.—A. Schmidt. Can. patent 222,839, Aug. 22, 1922.—After removing the sugar, the liquor is concentrated to half its volume, a current of chlorine is passed through it, the precipitate is filtered off and is treated hot with a chlorate and hydrochloric acid. The chlorinated product forms soluble salts with alkalis and partially insoluble salts with heavy metals. They can be used as tanning material, resin substitutes, etc.—A. P.-C.

Acetaldehyde and Paraldehyde Content of Crude Sulphite Alcohol.—E. Heuser, K. Schwarz, and H. Magnus. *Papierfabr.*, xx, 1-5 (1922); *Chem. Abs.*, xvi, 827 (March 10, 1922).—Two samples of unrefined alcohol contained 2.61 and 5.48 per cent acetaldehyde and 1.28 and 0.54 per cent paraldehpde. It is possible to fractionate a 15 per cent acetaldehyde mixture (methanol, ethanol, water, and acetaldehyde) in two distillations, so that the first fraction contains 94 per cent acetaldehyde. Sulphite alcohol containing less acetaldehyde requires at least three distillations to reach a 90 per cent acetaldehyde content.—A. P.-C.

A Common Purification Plant (for Sulphite Waste Products).—H. Wallin. *Svensk Pappers-Tid.*, xxiii, 317-318 (1920); *Chem. Abs.*, xvi, 829 (March 10, 1922).—A committee, of which Wallin is chairman, has communicated to the Paper Pulp Office a plan to take the raw products from Swedish sulphite mills which do not already reclaim their waste products and work them up at a central plant for oil of turpentine and methanol. Plans and a budget are presented which can handle 275 tons of raw oil and 475 tons of raw liquor and reclaim 200 t. of turpentine, 50 t. of other oils, 375 t. of methanol and 100 t. of second grade wood-spirit. The estimated income from the reclaimed materials exceeds the expense of the raw materials and operation by more than enough to pay for the plant needed.—A. P.-C.

Water Supply and Equipment

Water Used in the Paper Mill.—HO. *Papierfabr.*, xx, 290-294 (March 19, 1922). Discussion of the degree of purity of paper mill water and the processes of purifications used.—I. G.

General

The French Colonial Paper Making Fibers.—Raymond Bouvier. *Papier*, xxv, 315-320 (July, 1922); *Papeterie*, xliv, 681-690 (Aug. 10, 1922). An analysis of the French requirements in paper pulps and of the home and colonial resources practically available to meet these requirements with a plea for the co-operation of the French papermakers with the manufacturers of pulp from colonial grasses (esparto, rice, straw, and especially bamboo) to give the latter a chance to demonstrate the value of their product.—A. P.-C.

Bibliography of Paper Making, First Quarter, 1921.—C. G. Schwalbe. *Zellstoff u. Papier*, i, 77-80, 106-108 (1921); *Chem. Abs.*, xv, 3395 (Oct. 10, 1921). This is confined principally to the German literature.—A. P.-C.

Bibliography of the Pulp and Paper Industry, Second and Third Quarters, 1921.—C. G. Schwalbe. *Zellstoff u. Papier*, i, 261-274 (1921); *Chem. Abs.* xvi, 827 (March 10, 1922). Classified references with brief abstracts.—A. P.-C.

List of Abbreviated and Full Titles and of Addresses of the Journals from Which Abstracts Have Been Prepared for This Issue

Chem. Abs.	Chemical Abstracts. E. J. Crane, Ohio State University, Columbus, Ohio.
Chimie et Industrie	Chimie et Industrie, 49 Rue des Mathurins, Paris, France.
J. Ind. Eng. Chem.	The Journal of Industrial and Engineering Chemistry, H. E. Howe, 810 Eighteenth St., N. W., Washington, D. C.
Kartonnagen Papierwaren Ztg.	Kartonnagen- und Papierwaren-Zeitung
Kunststoffe	Kunststoffe. J. F. Lehmanns, Paul Heyerstr. 26, Munich, S.W. 2, Germany.
Mon. Papeterie Francaise	Le Moniteur de la Papeterie Francaise. 154 Boulevard Haussmann, Paris (8°), France.
Paper Trade J.	Paper Trade Journal. 10 East Thirty-ninth St., New York City.
Papeterie	La Papeterie. 9 rue Lagrange, Paris (5°), France.
Papier	Le Papier. 16 rue Du Rocher, Paris (8°), France.
Papierfabr.	Der Papier-Fabrikant. Otto Elsner, Oranienstr. 140-142, Berlin, S. 42, Germany.
Papir-Journalen	Papir-Journalen. Papierindustriens Hus, Huitf. gt. 1, Kristiania, Norway.
Pappers-Travaru Industritids. Finland.	Pappers-Travaru-Och Industritidskrift for Finland.

XUM

Publications of the Technical Association of the Pulp and Paper Industry

18 East Forty-first Street, New York, N. Y.

Technical Association Papers, Series III, 1920. In paper, 60 pages, $2.

Tests for Unbleached Sulphite and Sulphate Fibers, by R. E. Lofton and M. F. Merritt.
Standard Specifications for Cement and Lime Paper Bags, by Paul L. Houston.
Use of Sulphur in Soda Pulp Cooking, by George K. Spence.
Substitutes for Alum and Rosin, by W. E. Byron Baker.
Substitutes for Alum in Papermaking, by Max Cline.
Automatic Cooking Control for Chemical Pulp, by C. H. Allen.
Automatic Mixing System for Paper Stock, by Edward J. Trimbey.
A New Felt Cleaning Device, by C. A. Woodcock.
Fireproof Hood for Paper Machines, By F. M. Williams.
Description of Emmet's Mercury-Vapor Boiler.

Technical Association Papers, Series IV, 1921. In paper, 129 pages, $3.

How to Increase the Efficiency of Water Power Plants, by Charles M. Allen.
Strength Testing of Soda Pulp, by Ralph Mair and Grellet N. Collins.
Steam Economy in Drying on and Driving of Paper Machines, by R. W. Leeper.
Burning of Pulverized Fuel in Papermill Power Plants, by Loren L. Hebberd.
Shortening Cooking Time by Preliminary Impregnation in the Production of Sulphite Pulp, by Vance P. Edwardes.
Measuring Moisture of Chips in Cooking, by F. M. Williams.
Economics of Paper Mill Electrification, by Stephen A. Staege.
The Fulton System for Drying of Paper, by William B. Fulton.
A New Weightometer for Soft Stock, Chips and Acid, by E. J. Trimbey.
The Effect of Variables on Bleaching Efficiency, by George K. Spence.
Briner Economizer Using Only Waste Heat for Ventilation of Machine Room, by W. H. Howell.
Rinman Modification of Sulphate Process, by Bror. N. Segerfelt.
Manufacture of Groundwood by the Hall Process, by W. A. Munro.
Evaluation of Lime by Causticizing Test, by Carl Moe.
A Simple Moisture Content Indicator for Paper, by C. B. Whwing.
Study of the Casein Used in Coating Paper, by Clarke Marion.
Analytical and Testing Methods of the Committee on Standard Methods of Testing Materials, by E. C. Tucker.
The Analysis of Sulphite Cooking Acid, by Erik Oman.
Control Analyses of Sulphite Cooking Acid, by Prof. Dr. Peter Klason.

Technical Association Papers, Series V, 1922. In paper, 170 pages, $3.

The Power Plant of the Paper Industry, by A. G. Darling and H. W. Rogers.
A System of Records to Maintain Uniformity of Basis Weights of Paper, by Parker K. Baird.
Hydrating Machinery for the Paper Mill, by George L. Bidwell.
Modern Lighting for Paper and Pulp Mills, by J. H. Kurlander.
Some Factors Influencing Yield and Strength of Pulp Cooked by the Soda Process, by Martin L. Griffin.
The Efficient Production of Mechanical Pulp, by Adolph F. Meyer.
Sedimentation Control of Groundwood, by W. A. Munro.
Drying of Paper, by M. B. Littlefield.
The Electric Steam Generator, by Horace Drever and Frank Hodson.
Recovery and Its Control, by George K. Spence.
Relative Efficiency of the Automatic Magazine Grinder as Compared with the Pocket Type Grinder, by John J. Case.
Stamso—Cotton Linter Pulp, by Stewart E. Seaman.
Recommended Specifications for Limestone and Lime in the Manufacture of Sulphite Pulp.
Analysis of Reclaimed Cooking Acid for Sulphite Mills, by Gösta P. Genberg.
Concerning the Analysis of Raw Sulphite Acid, by Dr. Rudolf Sieber.
Contribution to the Knowledge of the Constitution of Spruce Wood Lignin, by Dr. Peter Klason.
Concerning Lignin and Lignin Reactions, by Dr. Peter Klason.
Contributions to a More Exact Knowledge of the Chemical Constitution of Spruce Wood, by Dr. Peter Klason.
Use of the Continuous Centrifugal, by J. R. Kessler and G. N. Collins.
The Chemistry of the Sulphite Process, by R. N. Miller and W. H. Swanson.
Report of Committee on Standard Methods of Testing Materials, by N. F. Becker.
Color Effect of Rosin Size Emulsion on Finished Product, by C. H. Kent.
Sulphur in Sulphite Waste Liquor, by George Barsky.
Producing Bleach Liquor with Liquid Chlorine, by S. W. Jacobs and H. P. Wells.
The Value of Fuel Economizers in Paper Mill Operation, by George E. Williamson and G. C. Derry.
A New Idea in Chip Breaking, by A. D. Wood.

Paper Testing:
- Microscopic Analysis of Paper.
- Effect of Relative Humidity and Variation of the Bursting Test.
- Tearing Test.
- Sizing Quality.
- Recommendations of the Committee on Paper Testing.

Standard Methods of Testing Materials:
- Aluminum Sulphate.
- Crown Filler.
- Lime.

Dyestuffs:
- Use of Auramine.
- Use of Copper Sulphate.
- Two-sidedness of Colored Papers.
- Stilbene Yellow.
- Foam and Its Prevention.

Drying of Paper:
- Methods of Test and Calculation.
- Water Evaporated.
- Heat Units Theoretically Required.
- Heat Supplied.
- Graduation of Temperature.
- Pounds of Paper per Square Foot of Drying Surface per Hour.

Paper Testing Methods (revised 1922). In paper, $2.

Paper Testing.
Microscopical Examination.
Physical Testing.
Chemical Analysis.
Interpretation of Data.
Bibliography.

Address the Secretary Technical Association of the Pulp and Paper Industry, 18 East 41st Street, New York

New York Office
280 Broadway

Chicago Office
1148 Otis Bldg.

Howard Bond

HOWARD BOND

Howard Ledger

"The Paper of Many Uses"

Manufactured by

THE HOWARD PAPER COMPANY, Urbana, Ohio

West Virginia Pulp and Paper Company

Manufacturers of

Supercalendered and Machine

Finished Book and Lithographic Papers

Offset, Envelope and Music Paper, High Grade Coated Book and Label Papers

also

Bleached Spruce Sulphite and Soda Pulp

200 Fifth Avenue
New York

732 Sherman Street
Chicago

At Your Service!

Sulphite Bond, white and colors
Genuine Vegetable Parchment
White Waxed Papers
Household Specialties

AVP
PAPERS

GREASEPROOF PARCHMENT PAPERS

OF STANDARD QUALITY

Purity — Quality Plus
Ashmere — Equally Fine
Berkshire — Stands the Test

OUR PAPERS ARE EXCELLENT FOR MEAT MARKETS, GROCERS AND GENERAL PACKING HOUSE REQUIREMENTS

Mountain Mill Paper

(Write for Samples and Quotations)
MILLS AND GENERAL OFFICES
125 Forest Street, Lee, Mass.

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 14, 1922

SUMMARY

News print.....95 bls., 1,638 rolls
Printing paper.....69 bls., 12 cs.
Wall paper.....5 bls., 1 case
Wrapping paper.....270 bls., 584 rolls, 5 cs.
Packing paper.....373 bls., 397 rolls
Writing paper.....40 cs.
Cigarette paper.....70 cs.
Drawing paper.....30 cs.
Enamel paper.....85 cs.
Fenestra paper.....52 cs.
Carbon paper.....69 cs.
Filter paper.....46 cs.
Parchment paper.....1 case
Miscellaneous paper.....3,287 rolls, 48 cs.

CIGARETTE PAPER

De Manduit Paper Co., La Lorraine, Havre, 20 cs.
De Manduit Paper Co., France, Havre, 50 cs.

DRAWING PAPER

E. Dietzgen & Co., Manchuria, Hamburg, 30 cs.

WRAPPING PAPER

E. Dietzgen & Co., Orbita, Hamburg, 5 cs.
First Federal Banking Association, by same, 16 bls.
First Federal Banking Association, by same, 170 rolls.
First Federal Foreign Banking Association, Resolute, Hamburg, 414 rolls.
First Federal Foreign Banking Association, by same, 254 bls.

ENAMEL PAPER

British American Tobacco Co., Grande Gaarde, Shanghai, 85 cs.

FENESTRA PAPER

Birn & Wachenheim, La Lorraine, Havre, 52 cs.

PACKING PAPER

Republic Bag & Paper Co., Orbita, Hamburg, 180 rolls.
M. D. Morosoff, Westerdyk, Rotterdam, 49 rolls.
M. D. Morosoff, by same, 41 bls.
Wilkinson Bros. & Co., Inc., by same, 332 bales.
Wilkinson Bros. & Co., Inc., by same, 168 rolls.

NEWS PRINT

Street & Smith Corp., Westerdyk, Rotterdam, 815 rolls.
Virginia Paper Co., Inc., President Harding, Bremen, 147 rolls.
Virginia Paper Co., by same, 95 bls.
Journal of Commerce, by same, 414 rolls.
New York Tribune, by same, 262 rolls.

PRINTING PAPER

C. Steiner, President Harding, Bremen, 12 cs.
C. Steiner, Manchuria, Hamburg, 69 bls.

CARBON PAPER

Irving National Bank, Manchuria, Hamburg, 69 cs.

FILTER PAPER

H. Reene Angel & Co., Inc., Berengaria, Liverpool, 2 cs.
Eimer & Amend, Nieu Amsterdam, Rotterdam, 4 cs.
E. Fougera & Co., Olympic, Bordeaux, 40 cs.

WRITING PAPER

H. Reene Angel & Co., Inc., Olympic, Southampton, 4 cs.

WALL PAPER

W. H. S. Lloyd & Co., Verbania, London, 5 bls.
W. H. S. Lloyd & Co., by same, 1 case.

PARCHMENT PAPER

Eimer & Amend, N. Amsterdam, Rotterdam, 1 case.

PAPER

F. Henjes, Jr., Storm King, Rotterdam, 31 cs.
Nelson Gottlieb, France, Havre, 2 cs.
Pritchard & Co., by same, 10 cs.
Parsons & Whittemore, President Harding, Bremen, 2,524 rolls.
F. L. Kraemer & Co., President Garfield, London, 5 cs.
Irving National Bank, N. Amsterdam, Rotterdam, 763 rolls.

RAGS, BAGGINGS, ETC.

Salomon Bros. & Co., Mercian, Manchester, 74 bls. new cuttings.
Alex Brown & Co., by same, 35 bls. new cuttings.
Brown Bros. & Co., by same, 69 bls. new cuttings.
R. F. Downing & Co., by same, 122 bls. new cuttings.
Ashworth, Speakman & Co., by same, 209 bgs. hide cuttings.
Mechanics & Metals National Bank, by same, 228 bls. bagging.
E. Butterworth & Co., Inc., by same, 147 bls. bagging.
L. H. Abensheimer, by same, 353 bls. bagging.
Castle, Gottheil & Overton, by same, 158 bls. rags.
E. J. Keller Co., Inc., by same, 80 bls. rags.
Guaranty Trust Co., by same, 36 bls. rags.
Equitable Trust Co., by same, 33 bls. waste paper.
Parsons & Whittemore, Storm King, Rotterdam, 234 bls. rags.
American Woodpulp Corp., by same, 298 bls. rags.
Katzenstein & Keene, Inc., by same, 556 bls. rags.
E. J. Keller Co., Inc., by same, 107 bls. new cuttings.
Equitable Trust Co., Feliciana, London, 32 bls. waste paper.
Irving National Bank, by same, 56 bls. rags.
Goldman, Sachs & Co., Rochambeau, Havre, 291 bls. rags.
Kidder, Peabody & Co., by same, 68 bls. rags.
Castle, Gottheil & Overton, by same, 55 bls. rags.
Castle, Gottheil & Overton, by same, 89 bls. new cuttings.
Castle, Gottheil & Overton, by same, 168 bls. bagging.
E. J. Keller Co., Inc., Rochambeau, Havre, 39 bls. new rags.
E. J. Keller Co., Inc., by same, 176 bls. rags.
D. M. Hicks, Inc., by same, 389 bls. bagging.
R. F. Downing & Co., by same, 309 bls. bagging.
Ladenburg, Thalman & Co., by same, 146 bls. rags.
M. O'Meara Co., Westerdyk, Rotterdam, 67 bls. paper stock.
Wilkinson Bros. & Co., Inc., by same, 101 bls. paper stock.
Katzenstein & Keene, Inc., by same, 50 bls. bagging.
Katzenstein & Keene, Inc., by same, 97 bls. rags.
E. J. Keller Co., Inc., by same, 1,386 bls. rags.
S. Silberman, by same, 128 bls. paper stock.
Albion Trading Co., by same, 144 bls. rags.
A. C. Loveland & Co., Inc., by same, 147 bls. rags.
G. M. Graves & Co., Inc., by same, 164 bls. bagging.
G. W. Millar & Co., by same, 213 bls. bagging.
Int'l Acceptance Bank, by same, 57 bls. rags.
American Wood Pulp Corp., by same, 238 bls. rags.
Waste Material Trading Corp., by same, 546 bls. rags.
Waste Material Trading Corp., by same, 147 bls. bagging.
Dexcar Trading Co., by same, 147 bls. rags.
Waste Material Trading Corp., N. Amsterdam, Rotterdam, 967 bls. paper stock.
Waste Material Trading Corp., by same, 303 bls. bagging.
P. Berlowitz, by same, 48 bls. rags.
Wilkinson Bros. & Co., Inc., by same, 125 bls. paper stock.
Katzenstein & Keene, Inc., by same, 134 bls. rags.
Katzenstein & Keene, Inc., by same, 8 bls. bagging.
S. Silvermann, by same, 336 bls. shopperies.
American Wood Pulp Corp., by same, 11 bls. bagging.
American Wood Pulp Corp., by same, 160 bls. rags.
Dexcar Trading Co., by same, 13 bls rags.
E. J. Keeler Co., Inc., by same, 447 bls. rags.
G. M. Graves & Co., Inc., by same., 112 bls. rags.
American Exchange Nat'l Bank, by same, 338 bls. rags.
Royal Manfg. Co., by same, 40 bls. cotton waste.
E. J. Keller Co., Inc., Gerty, Trieste, 155 bls. rags.
E. J. Keller Co., Inc., by same, 103 bls. bagging.
E. J. Keller Co., Inc., Wm. Penn, Hamburg, 101 bls. bagging.
Katzenstein & Keene, Inc., Schoharie, Hamburg, 233 bls. rags.
Salomon Bros. & Co., Chicago, Havre, 111 bls. rags.
Salomon Bros. & Co., Michigan, Antwerp, 71 bls. rags.
Salomon Bros. & Co., Galileo, Hull, 177 bls. rags.

OLD ROPE.

E. J. Keller Co., Inc., Gerty, Trieste, 37 bales.
E. J. Keller Co., Inc., Independ. Hall, Rotterdam, 72 bales.
Castle, Gottheil & Overton, Feliciana, London, 46 bales.
E. J. Keller Co., Inc., Westerdyk, Rotterdam, 73 bales.
Equitable Trust Co., Rochambeau, Havre, 525 bales.

WOOD PULP.

Castle, Gottheil & Overton, Westerdyk, Rotterdam, 512 bales.
American Wood Pulp Corp., Resolute, Hamburg, 1,100 bales, 222 tons.
American Wood Pulp Corp., Pr. Harding, Bremen, 750 bales, 152 tons.
Johanesson, Wales & Sparre, Inc., by same, 1,250 bales, 253 tons.
Scandinavian-American Trading Co., by same, 2,400 bales, 304 tons.
U. S. Lines, by same, 2,625 bales, 525 tons.
H. Hollessen, by same, 2,317 bales, 463 tons.

WOOD FLOUR.

The Hansa Co., Orbita, Hamburg, 540 bags.
A. Kramer & Co., Inc., Manchuria, Hamburg, 271 bags.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 14, 1922

E. J. Keller Co., Inc., Storm King, Rotterdam, 148 bls. rags.
D. J. Murphy, by same, 167 bls. rags.
American Wood Pulp Corp., by same, 151 bls. rags.
Corn Exchange Nat'l Bank, by same, 195 bls. rags.
Salomon Bros. & Co., Schoharie, Hamburg, 545 bls. rags.
Salomon Bros. & Co., Steigerwald, Hamburg, 182 bls. rags.
Katzenstein & Keene, Inc., Schoharie, Hamburg, 355 bls. rags.
Katzenstein & Keene, Inc., Breedyk, Rotterdam, 41 bls. rags.
E. J. Keller Co., Inc., by same, 867 bls. rags.
E. J. Keller Co., Inc., Schoharie, Hamburg, 371 bls. rags.
E. J. Keller Co., Inc., Anaconda, Antwerp, 123 bls. rags.
E. J. Keller Co., Inc., Maryland, Bremen, 54 bls. rags.
E. J. Keller Co., Inc., Manchester Importer, Manchester, 238 bls. bagging.
Castle, Gottheil & Overton, Riol, London, 83 bls. waste paper.
Castle, Gottheil & Overton, Breedyk, Rotterdam, 112 coils old rope.
Castle, Gottheil & Overton, Breedyk, Rotterdam, 387 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 14, 1922.

Castle, Gottheil & Overton, Breedyk, Rotterdam, 665 bls. rags.
E. J. Keller Co., Inc., Michigan, Antwerp, 321 bls. bagging.
Katzenstein & Keene, Inc., Hoxie, Glasgow, 151 bls. rags.
Salomon Bros. & Co., West Helix, Hamburg, 80 bls. rags.
Salomon Bros. & Co., Breiz Izel, Havre, 231 bls. rags.

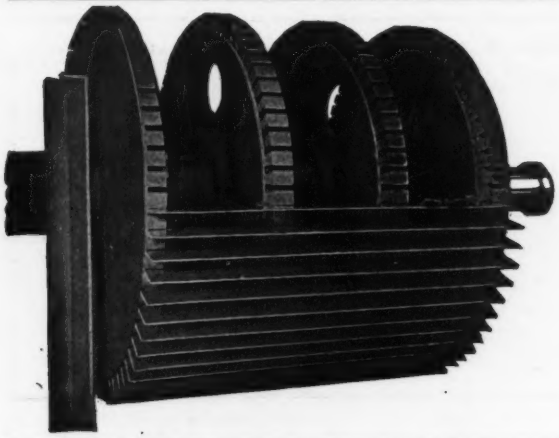
BOSTON IMPORTS

WEEK ENDING OCTOBER 14, 1922.

R. F. Hammond, Dania, Christiania, 900 bls. wood pulp, 150 tons.
E. J. Keller Co., Inc., by same, 300 bls. wood pulp, 50 tons.
E. J. Keller Co., Inc., Breedyk, Rotterdam, 260 bls. rags.
International Purchasing Co., Galtymore, Liverpool, 98 coils manila rope.
Train, Smith Co., by same, 48 bs. waste paper.
Geo. M. Greaves Co., by same, 65 bs. waste paper.
Cram & Co., by same, 85 bs. rags.
A. Katzenstein Co., Novian, Liverpool, 148 bs. new rags.
Jebb Bros., by same, 100 bs. waste paper.
Train, Smith Co., by same, 121 bs. rags, 38 bs. waste paper.
Order, by same, 272 bs. new cotton cuttings.
Bird & Son, by same, 63 bs. old rags.
George M. Greaves Co., by same, 15 bs. rags.
True & McClelland, Winifredian, Liverpool, 41 bs. waste paper.
Geo. W. Wheelwright & Co., by same, 189 bs. waste paper.
International Purchasing Co., by same, 306 coils manila rope.
Train, Smith Co., by same, 601 bs. waste paper.

HIDE CUTTINGS.

E. F. Russ Co., Winifredian, Liverpool, 630 bags.



Dilts Machine Works, Inc.

Fulton, N. Y., U. S. A.

Manufacturers of

BEATING and WASHING ENGINES
FLY BARS—BED PLATES—
MACHINE KNIVES

Our new KEYED TYPE BANDLESS ROLL is the final result of many Years of Experience.

May we not tell you about its many advantages?

The Pulp and Paper Trading Co.

21 East 40th Street **New York City**

DEALERS IN DOMESTIC CHEMICAL AND MECHANICAL PULPS AND PAPER

AGENTS FOR

J. & J. Rogers Company, Ausable Forks, N. Y.
Ware Coated Paper Company, Ware, Mass.
E. B. Eddy Co., Ltd., Hull, Canada
Canadian Kraft Limited, Three Rivers, Canada
Dealers in Wayagamack Kraft Pulp
Howard Smith Paper Mills, Montreal, Canada

EASTERN AGENTS of Sulphite Pulp.
Made by Port Huron Sulphite & Paper Co., Port Huron, Mich.

Missisquoi Pulp and Paper Company

SHELDON SPRINGS **VERMONT**

White and Tinted Bristols—White Blanks—Index Bristol and Specialties in Card Boards.

SONNEBORN PRODUCTS

No more dusting and wearing of the concrete floors in your factory. Just flush on

LAPIDOLITH
TRADE MARK

the liquid chemical hardener which has been the standard for twelve years.
Lapidolith makes concrete floors non-absorbent and resistant to acids and alkalis.
Look over your floors. If they dust, apply Lapidolith.

Write for samples and testimonials to Dept. 30

L. SONNEBORN SONS, INC.
116 Fifth Ave. **New York**

SONNEBORN

NORWOOD

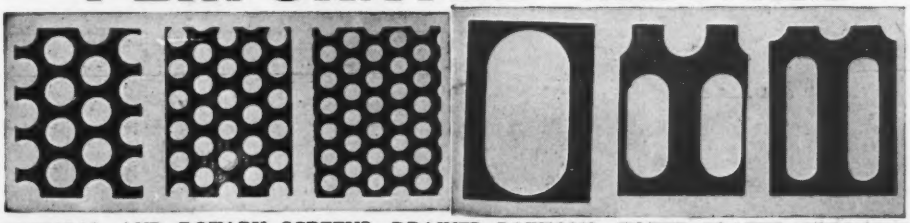
PAPER FINISHING MACHINERY

Write for Information

NORWOOD ENGINEERING CO.
Florence, Mass., U. S. A.

PERFORATED METALS

All sizes and shapes of Holes



All kinds and thicknesses of Metal

FOR CENTRIFUGAL AND ROTARY SCREENS, DRAINER BOTTOMS, FILTER PLATES, PULP WASHERS, ETC.

The Harrington & King Perforating Company

618 No. Union Ave., Chicago, Ill., U. S. A. **New York Office, 114 Liberty St.**

LINDSAY BROS., Inc.

Keystone Mill Division

MANUFACTURERS OF

MANILA, WHITE AND KRAFT

WAXED PAPERS

SURFACE AND DRY WAXING

804-806-808 Sansom Street
PHILADELPHIA, PENNA.

JAMES ROSENBERG, Pres. L. W. BOWMALL, Vice-Pres.

AMERICAN WOODPULP CORPORATION

FOREIGN AND DOMESTIC

CHEMICAL and MECHANICAL WOODPULPS

Rags, New Cuttings, Bagging, Etc.

New York—347 Madison Ave.

BRANCHES:
Stockholm—Sweden
Helsingfors—Finland
Holyoke—J. B. Woodruff, Inc.
Kalamazoo—F. D. Haskell
Dayton—R. R. Reed

Bagley Manufacturing Corporation

Mills: Austin, Pa.

Sales Office: 527 Fifth Ave., New York

RED CAP FIBRE

AND OTHER

HIGH GRADE SULPHITE WRAPPING PAPERS

"DRAPER" FELTS

For Any Grade of Paper or Pulp

ARE GUARANTEED

To Give Entire Satisfaction

MANUFACTURED BY

DRAPER BROS. CO., CANTON, MASS.

ASK THE MAN WHO OWNS ONE

Packard Trucks

Papier-Zeitung

BERLIN SW 11 (GERMANY)

Founded by Carl Hofman, 1876

appears three times a week

Covers the whole paper trade (paper making, transforming, stationery). More than 12,500 bonafide subscribers all over the world.

Subscription: 4 Dollars

SERVICE WOOD ROLLS

A Construction for Every Service

Free Roll Blue Prints

RODNEY HUNT MACHINE CO.

No. 63 Maple Street Orange, Mass.

THE

Baby Claflin Refiner

for

Refining Light Stock and Experimental Purposes

The plug is 12 inches outside diameter at the large end. Six inches at the small end and seven inches long. It is equipped with Hyatt Roller Bearings and U. S. Ball Thrust Bearings.

Capacity is 300 to 500 pounds per hour. A 10 H. P. motor is required with a speed of 750 RPM.

The machine weighs 900 pounds.

Inquires will receive prompt attention

THE CLAFLIN ENGINEERING COMPANY

LANCASTER, OHIO 9

Felt Test—Lowest Cost per Ton

If you judge felt values, not by what you put into the equipment, but what you get out of it—then you will specify ORR 3 stripe Endless Felts, for ORR felts will produce the lowest cost per ton. They "stand up" under severe usage. Orr durability is acknowledged everywhere. Their strength and long life are as dependable as their reliability and quality.

In the 32 grades of Felts and Jackets we can match your most exacting demands. Tell us the kind of paper you desire to make, and we will send you samples of felts that will economically serve you and help you to produce paper at lowest cost per ton.

THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

PAPER MAKERS CHEMICAL CO.
WESTERN PAPER MAKERS CHEMICAL CO.

EASTON HOLYOKE KALAMAZOO
JACKSONVILLE PENSACOLA ST. AUSTELL

CLAYS ROSIN SIZE
SATIN WHITE FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

PULP STONES

of absolutely the finest quality

Lombard & Co., Incorporated
Importers and Dealers
236-238 A Street : BOSTON, MASS.
Branch at Montreal, Canada

Perforated Metal Screens
For Pulp and Paper Mills

.065 Inch Round

½ x ½ Inch Slots

STEEL, COPPER, BRASS, BRONZE and other Alloys

punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

CHARLES MUNDT & SONS
53-65 FAIRMONT AVE. JERSEY CITY, N. J.

PAPER TWINE
of every description

For use in electrical conduits, cables and furniture, wool or fleece, twine, seaming cord, marking twines and all special paper twines or yarns for knitting, weaving or other manufacturing purposes in plain or printed white or colored.

NATIONAL PATENT REED SALES CO.
1096 Drexel Bldg. Philadelphia, Pa.

WILLIAM A. HARDY & SONS COMPANY, Fitchburg, Mass., U.S.A.

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
TUESDAY, OCTOBER 17, 1922.

From an industrial point of view the outlook for the paper trade during the balance of the present year and for the first few months at least of 1923, is exceptionally bright. In the first place, unemployment is coming to an end. Reports from 1,428 concerns on September 30, showed they had 28,668 more employees on their payrolls than on August 31. A number of these concerns were paper companies. The report comes from New England this week that several of the larger producers of news print are actually advertising for men to work in their lumber camps. This increase in employment means that there are thousands more of people the country over who are earning money, producing necessary commodities and, in consequence, buying more of the finished manufactures.

In the October issue of the Federal Reserve Bank review a chart showing the production of basic commodities in August, 1922, indicates that wood pulp production was 5 per cent greater than normal at that time while paper production was but 7 per cent below normal. These indications point to the fact that more paper and pulp are being used as the production in the basic industries continues to expand.

News print continued to be the outstanding feature of the paper market during the past week. Owing to the fact that President Philip T. Dodge of the International Paper Company is not expected to return from Europe until the first part of November, it is expected that the announcement of the new International contract price on news print for 1923 shipment will be deferred until then. Publishers are requiring more news print from producers at present than they have in the history of the industry. Metropolitan newspapers are publishing daily editions that are the equivalent of the Sunday edition of a few years ago. Advertising is on the increase and publishers are employing every device possible to expand the circulations of their papers.

Prices have remained firm in the New York market for book paper and the rumor was current amongst the trade that Western mills were holding out for higher price levels, due probably to the uncertainty of transportation conditions as well as to the fact that many schedule shipments to Western consumers are behind time. But few buyers are still reluctant to participate in the book market and mills are kept operating at a lively pace to meet the heavy demand.

A decidedly better feeling was evidenced in the kraft paper market of the past week than has been seen in some time. Wrapping paper manufacturers and mill agents were besieged with inquiries and orders, and prices ruled exceptionally firm to strong. Mills are well loaded down with orders and a continuance of good business is anticipated throughout the balance of the year.

Board consumers have been inclined, during the past week, to hold off to a certain extent in anticipation of a relaxation in the unusually stiff price tension. Dealers report that, while business does not quite come up to the expectations they held several months ago, mills are, however, running to capacity and with coal again abundant, are turning out uniformly heavy quantities of all grades of board. The demand has been exceptionally strong for test container, fiber and corrugated box boards in the last few weeks and the advanced prices on these commodities have held firm.

Mechanical Pulp

Supplies of ground wood are coming into evidence as a result of the increased domestic production, as well as greatly augmented imports of this commodity. It is generally felt throughout the trade that the higher prices on chemical pulp, which have prevailed in recent weeks, have been sustained, not by an artificial stimulus, but as a logical consequence of high priced raw material and almost insurmountable production difficulties. Domestic pulps are listed at $34 to $36 per ton, f. o. b. mill and this price is unusually firm. Prime imported spruce pulp, ex dock, New York, is quoted from $36 to $39, imports having fallen off but slightly over the preceding week. With the approach of the rainy season ground wood production will be able to go forward in proportion to the strides made in the news print, board and other branches of the industry, requiring large tonnages, and the outlook for the balance of the present year is an exceedingly bright one.

Chemical Pulp

The boom which has swayed this market for the past two to three weeks and which was accompanied by a sporadic series of price increases, coming almost hourly from European representatives, is now believed in pulp circles, to be subsiding. While it is true that mills will be taxed to capacity in the production of sufficient wood pulp to meet the orders now on hand, the bulk of heavy tonnage buying has been done for the current year and purchasing for the next three months may be expected to be more of a hand-to-mouth character. The conditions which precipitated the recent price boosts in the chemical pulp market were more of an artificial nature, than those which attended the market for mechanical pulp. Added to the industrial difficulties in this country and the scarcity of domestic pulp, foreign mills were operated to but 50 per cent of normal. With the picking up of the paper business both in England and United States, pulp was in such great demand for a short period that prices were forced skyward. They are still firm, in that no change in either direction has been noted, but they are not as solid as they have been in the last few weeks. Quotations are rendered by mill agents, frequently subject to a counter proposal, in the event that the price does not suit.

Old Rope and Bagging

Holding in steady demand, at prices which have remained firm for several weeks, old rope of No. 1 quality continues to be absorbed by mills at figures approximating 5.50 to 5.75 cents per pound. Dealers continue to avoid committing themselves on unusually large tonnages in the expectation of a higher scale of prices and even heavier demand from the consuming trade.

Bagging continues to improve in tone although prices remain practically the same. Scrap bagging dealers are looking forward to enlivened business conditions as a result of the improvement in the tissue situation. As usual, roofing bagging has been the highlight in this market, prices holding firm in the neighborhood of 90 cents a hundred pounds.

Waste Paper

Although reported to be falling off in Western circles, the waste paper market of New York has held strong throughout the past week. Manufacturers of the East have been requiring regular quantities and as a result, orders have been in sufficiently great number to insure good business. The rising pulp market of the last few weeks has played an important role in holding waste paper at its present firm level. The grades of paper stock utilized by board manufacturers have been in exceptionally good call and No. 1 mixed paper has been turned over to them at prices slightly better than $1.20 per hundred.

Rags

The efforts of felt manufacturers to pull down the soaring prices on roofing rags have had the effect of reducing the cost of this commodity about $1 per ton, but the increased scale of business at this slightly lower figure would indicate that the depression will not be a lasting one. Imported rags have been quiet during the past week owing to the fact that importers are not getting attractive enough prices from manufacturers to warrant their selling. This is especially true of imported roofing rags. Paper mills have been demanding a fair amount of new cotton cuttings, but purchasing is, in the main, done in small, irregular quantities.

XUM

Market Quotations

Paper Company Securities

New York Stock Exchange closing quotations October 17, 1922:

	BID	ASKED
American Writing Paper Company, pref.	33½	34
International Paper Company, com.	62⅜	62¾
International Paper Company, pref., stamped	78	79½
Union Bag & Paper Corporation	71¼	72

Paper

F. o. b. Mill.

Ledgers	10.50	@38.00
Bonds	9.00	@55.00
Writings—		
Extra Superfine	16.00	@35.00
Superfine	14.00	@30.00
Tub Sized	10.00	@15.00
Engine Sized	8.50	@11.00
News—f. o. b. Mill—		
Rolls, contract	3.85	@ 4.00
Rolls, transit	4.00	@ —
Sheets	4.00	@ —
Side Runs	3.25	@ 3.50
Book, Cased—f. o. b. Mill		
S. & S. C.	7.00	@ 8.00
M. F.	6.50	@ 7.50
Coated and Enamel	9.00	@ 9.50
Lithograph	9.00	@ 9.50
Tissues—f. o. b. Mill		
White, No. 1	All quotations withdrawn	
Colored		
Anti-Tarnish		
Silver Tissue		
Manila		
Kraft—f. o. b. Mill—		
No. 1 Domestic	7.00	@ 7.50
No. 2 Domestic	5.50	@ 6.25
Imported	6.00	@ 6.25
Screenings	3.00	@ 3.50
Manila—		
No. 1 Jute	8.50	@ 9.00
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.50	@ 5.50
No. 2 Wood	4.00	@ 4.50
Butchers	4.25	@ 4.75
Fiber Papers—		
No. 1 Fiber	6.00	@ 6.25
No. 2 Fiber	5.00	@ 5.25
Common Bogus	2.50	@ —
Card Middies	4.00	@ 5.00
Boards—per ton—		
News	65.00	@ —
Straw	—	@ —
Chip	60.00	@ —
Binders' Board	75.00	@ —
Sgl. Mla. LL Chip	70.00	@ —
Wood Pulp	—	@ —
Container	—	@ —
Wax Paper—		
Self Sealing White 28 and 30 lb. basis	11.00	@12.00
Waxed Tissue	1.60	@ 1.80
Glassine—		
Bleached, basis 25 lbs.	All quotations withdrawn	
Bleached, basis 20 lbs.		

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	34.00	@40.00
No. 1 Domestic	32.00	@36.00

(F. o. b. Pulp Mills.)

Chemical Pulp

(Ex-Dock, Atlantic Ports.)

Sulphite (Imported)—		
Bleached	4.40	@ 4.75
Easy Bleaching	2.85	@ 3.10
No. 1 strong unbleached	2.80	@ 3.00
No. 2 Strong unbleached	2.50	@ 2.70
No. 1 Kraft	2.80	@ 3.00
Sulphate—		
Bleached	3.90	@ 4.00
(F. o. b. Pulp Mill.)		
Sulphite (Domestic)—		
Bleached	4.40	@ 4.75
Strong unbl'chd.	2.80	@ 3.00
Easy Bleaching Sulphite	2.80	@ 3.10
News Sulphite	2.60	@ 2.80
Mitscherlich	2.85	@ 3.15
Kraft (Domestic)	2.75	@ 3.00
Soda Bleached	4.25	@ 4.50

Domestic Rags

New

Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	11.25	@11.75
New White, No. 2	6.50	@ 7.00
Silesias, No. 1	6.25	@ 6.75
New Unbleached	9.00	@ 9.50
Washables	4.00	@ 4.25
Fancy	5.00	@ 5.50
Cotton—according to Grades—		
Blue Overall	5.50	@ 6.00
New Blue	4.75	@ 5.00
New Black Soft	5.50	@ 6.00
New Light Seconds	2.75	@ 3.00
O. D. Khaki Cuttings	3.75	@ 4.25
Men's Corduroy	2.75	@ 3.00
New Canvas	7.00	@ 7.25
New Black Mixed	2.50	@ 2.75
Old		
White, No. 1—		
Repacked	6.50	@ 6.75
Miscellaneous	5.50	@ 6.00
White, No. 2—		
Repacked	3.25	@ 3.50
Miscellaneous	2.75	@ 3.00
St. Soiled White	1.65	@ 1.75
Thirds and Blues—		
Repacked	1.75	@ 1.85
Miscellaneous	1.45	@ 1.55
Black stockings	2.90	@ 3.25
Roofing Rags—		
Cloth Strippings	1.25	@ 1.35
No. 1	1.25	@ 1.35
No. 2	1.20	@ 1.25
No. 3	.85	@ .95
No. 4	.85	@ .95
No. 5A	1.00	@ 1.10

Foreign Rags

New Light Silesias	6.00	nominal
Light Flannelettes	6.75	nominal
Unbl'chd Cottons	7.50	nominal
New White Cuttings	9.50	nominal
New Light Oxfords	6.00	nominal
New Light Prints	4.50	nominal
New Mixed Cuttings	2.00	@ 2.50
New Dark Cuttings	1.90	@ 2.10
No. 1 White Linens	9.00	@11.00
No. 2 White Linens	6.50	nominal
No. 3 White Linens	5.00	nominal
No. 4 White Linens	3.50	nominal
Old Extra Light Prints	2.00	nominal
Ord. Light Prints	1.75	nominal
Med. Light Prints	1.50	nominal
Dutch Blue Cottons	1.85	nominal
German Blue Cottons	1.60	@ 1.70
Ger. Blue Linens	3.50	nominal
Checks and Blues	1.50	nominal
Dark Cottons	1.30	@ 1.35
Shoppery	1.00	@ 1.05
French Blues	1.75	@ 2.00

Bagging

Prices to Mill f. o. b. N. Y.

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.00	@ 1.10
Wool, Tares, light	1.45	@ 1.55
Wool, Tares, heavy	1.40	@ 1.50
Bright Bagging	1.10	@ 1.25
No. 1 Scrap	1.00	@ 1.15
Sound Bagging	.85	@ .95
Manila Rope—		
Foreign	5.75	@ 6.00
Domestic	6.00	@ 6.25
New Bu. Cut	2.25	@ 2.45
Hessian Jute Threads—		
Foreign	2.25	@ 2.50
Domestic	2.20	@ 2.40
Mixed Strings	.90	@ 1.00

Twines

Cotton—(F. o. b. Mill)		
No. 1	.35	@ .37
No. 2	.31	@ .33
No. 3	.37	@ .39
India, No. 6 basis—		
Light	.20	@ .21
Dark	.19	@ .20
B. C., 18 Basis	.41	@ .42
A. B. Italian, 18 Basis	.51	@ .61
Finished Jute—		
Light, 18 basis	.26	@ .27
Dark, 18 basis	.29	@ .30
Jute Wrapping, 3-6 Ply—		
No. 1	.23	@ .24
No. 2	.21	@ .22
Tube Rope—		
4-ply and larger	.15	@ .17
Fine Tube Yarn—		
5-ply and larger	.19	@ .21
4-ply	.20	@ .22
3-ply	.20	@ .22
Unfinished India—		
Basis	.16	@ .17
Paper Makers Twine Balls	.13	@ .15
Box Twine, 2-3 ply	.18	@ .19
Jute Rope	.21	@ .24
Amer. Hemp, 6	.33	@ .35
Sisal Hay Rope—		
No. 1 Basis	.15	@ .17
No. 2 Basis	.13	@ .15
Sisal Lath Yarn—		
No. 1	.14	@ .15
No. 2	.11	@ .13
Manila Rope	.18	@ .19

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	4.00	@ 4.25
Hard, White, No. 2	3.75	@ 4.00
Soft, White No. 1	3.75	@ 4.00
Flat Stock—		
Stitchless	2.65	@ 2.80
Over Issue Mag.	2.70	@ 2.85
Solid Flat Book	2.60	@ 2.70
Crumpled No. 1	2.10	@ 2.25
Solid Book Ledger	3.10	@ 3.25
Ledger Stock	2.25	@ 2.50
New B. B. Chips	.65	@ .70
Manilas—		
New Env. Cut	2.50	@ 2.75
New Cut No. 1	2.00	@ 2.10
Extra No. 1, Old	1.55	@ 1.65
Print	1.10	@ 1.20
Container Board	1.00	@ 1.10
Bogus Wrapper	1.05	@ 1.15
Old Krafts, machine compressed Bales	2.35	@ 2.50
News—		
No. 1 White News	2.30	@ 2.35
Strictly Overissue	1.40	@ 1.50
Strictly Folded	1.25	@ 1.35
No. 1 Mixed Paper	1.10	@ 1.20
Common Paper	.70	@ .75

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper

F. o. b. Mill

All Rag Bond	35	@ 40
No. 1 Rag Bond	30	@ 35
No. 2 Rag Bond	18	@ 25
Water Marked Sulphite	10	@ 14
Sulphite Bond	9½	@ 12
Sulphite Ledger	12	@ 14
Superfine Writing	18	@ 24
No. 1 Fine Writing	14	@ 22
No. 2 Fine Writing	12	@ 20
No. 3 Fine Writing	9	@ 12
No. 1 M. F. Book	6¾	@ 7½
No. 1 S. & S. C. Book	7	@ 8½
Coated Book	8½	@ 12½
Coated Label	8¼	@ 9½
News—Rolls, mill	4¼	@ 4½
News—Sheets, mill	3¾	@ 4¾
No. 1 Manila	4½	@ 6
No. 1 Fiber	5	@ 5½
No. 2 Manila	4½	@ 5
Butchers' Manila	4	@ 4½
No. 1 Kraft	7	@ 7½
No. 2 Kraft	6½	@ 7
Wood Tag Boards	4½	@ 5
Screenings	3½	@ 4
Boards, per ton—		
Plain Chip	All quotations withdrawn	
Solid News		
Manila Lined Chip		
Container Line—		
85 Test		
100 Test		

Old Papers

Shavings—		
No. 1 Hard White	4.25	@ 4.50
No. 1 Soft Shav.	3.75	@ 4.00
No. 1 Mixed	1.85	@ 2.00
No. 2 Mixed	1.75	@ 1.90
White Envel. Cuttings	4.25	@ 4.50
Ledgers and Writings	2.65	@ 2.75
Solid Books	2.55	@ 2.65
No. 1 Books, light	2.00	@ 2.25
Blanks	2.00	@ 2.25
Ex. No. 1 Manila	2.40	@ 2.60
Manila Envelope Cuttings	2.50	@ 2.65
No. 1 Manilas	1.75	@ 2.00
Folders News (over issue)	1.40	@ 1.50
Old Newspaper	1.35	@ 1.45
Mixed Papers	1.25	@ 1.50
Straw Clippings	1.25	@ 1.50
Binders Clippings	1.25	@ 1.50
Kraft	2.40	@ 2.60
New Kraft Cuts	2.50	@ 2.60
Roofing Stock, f. o. b. Chicago, Net Cash—		
No. 1	32.00	@ —
No. 2	30.00	@ —
No. 3	28.00	@ —
No. 4	28.00	@ —

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.10	@ .60
Ledgers	.15	@ .40
Writings—		
Superfine	.15	@ .20
Extra fine	.12	@ .22
Fine	.20	@ .30
Fine, No. 2	.20	@ .25
Fine, No. 3	.15	@ .20
Book, M. F.	.06	@ .09
Book, S. S. & C.	.08	@ .15
Book, Coated	.08	@ .15
Coated Lithograph	.10	@ .15
Label	.08	@ .15
News	.05	@ .07
No. 1 Jute Manila	.12	@ .13
Manila Sul., No. 1	.08	@ .08½
Manila No. 2	.07½	@ .08
No. 2 Kraft	—	@ .08½
No. 1 Kraft	—	@ .09½
Common Bogus	.02½	@ .03
Straw Board	67.50	@70.00
News Board	58.00	@
Chip Board	58.00	@
Wood Pulp Board (Carload Lots)	1.20	@ 1.25
Binder Boards—		
Per ton	80.00	@
Carload lots	80.00	@
Tarred Felts—		
Regular	48.00	@50.00
Slaters	54.00	@56.00
Best Tarred, 1-ply (per roll)	1.35	@ 1.50
Best Tarred, 2-ply (per roll)	1.00	@ 1.15
Best Tarred, 3-ply	1.50	@ 1.65

Bagging

F. o. b. Phila.

Gunny No. 1—		
Foreign	1.10	@
Domestic	1.10	@
Manila Rope	5.25	@ 5.75
Sisal Rope	.75	@ .80
Mixed Rope	.75	@ .80
Scrap Burlaps	1.00	@ 1.25
Wool Tares, heavy	2.50	@ 2.75
Mixed Strings	.75	@ .80
No. 1, New Lt. Burlap	1.75	@ 2.00
New Burlap Cuttings	1.75	@ 2.10

Old Papers

F. o. b. Phila.

Shavings—		
No. 1, Hard White	4.00	@ 4.25
No. 2, Hard White	3.50	@ 3.75
No. 1 Soft White	3.60	@ 3.75
No. 2 Soft White	2.00	@ 2.25
No. 1 Mixed	1.50	@ 1.75
No. 2 Mixed	1.00	@ 1.25

(Continued on page 66)

XUM

Waste in Paper Mills

By B. T. McBain, Director of Manufacturing, Nekoosa-Edwards Paper Co.

For many years this subject has been before most of the hundreds of mills operating today, there are very few saving all the valuable material they could with proper equipment and continual checking.

In one mill of my own experience, making 200 tons of groundwood pulp per day, the loss was over 10 per cent and by simply diverting the white water running into the river, the product was increased from 200 to 220 tons per day with the same wood and power. Also by a small loss in power and increasing the speed of grinders 10 per cent, running three three-pocket grinders on a line where four three-pocket grinders had run, another 10 per cent was gained, the product for years with the same wheels averaging 240 tons per day where 200 tons looked like maximum.

Less labor made the 240 tons since where there were 57 grinders in use, the number was reduced to 44, thus saving in power, labor and stock and getting down to 60 H. P. per ton where 75 H. P. to 80 H. P. had been necessary.

The mill I refer to was not any more wasteful at that time than the average mill and many, many mills are as wasteful today as they were then.

I know of one mill today producing 150 to 175 tons daily of news print, where all the white water from the paper machines goes into the river and fresh water is used on the machines entirely. The manager says the waste is only 2 lb. to 3 lb. per 1,000 gallons, but when you consider that the consistency of the stock delivered to the machine is not over 40 lb. in 1,000 gallons, the loss is 5 to 7½ per cent and if they produce 150 tons of paper, the loss is 7½ to 11 tons of good stock per day. At Wisconsin pulp costs, this alone would pay a fair dividend on their stock.

I know of a groundwood mill making over 200 tons of fine groundwood per day for a good grade of paper, where all the white water from deckers and wet machines goes into the river, while new water comes into the mill to convey the newly ground wood through the drains, pumps and pipes to these same machines. Again the loss is only 3 lb. for 4 lb. per 1,000 gallons, not .3 to .4 of one per cent but 7½ to 10 per cent of the pulp made and the best and finest part of said pulp for filler wasted.

The river below the mill proves this and it is a fact that if a large enough saveall could be placed on dams further down stream, at times enough stock could be caught to fill the inside cylinders of a board machine, producing many tons per day. These losses are said to be necessary, but these same mills keep their nails and pipe fittings locked up, checking out nails a pound at a time and fittings very carefully to prevent waste or loss.

Drinking Cups from Waste Paper Pulp

C. R. Robinson, of 1582 East 13th street, Brooklyn, last week made in the Labratories of J. A. Wiarda Company, 273 Green avenue, Brooklyn, H. B. Bishop, president, and others present, drinking cups from pulp from waste paper which contains no paraffin and held boiling hot solutions as well as cold solutions. Mr. Robinson describes the operation as follows:

"I used a form made from paper machine wire the inside of which contained a suction which drew the pulp to the form and so formed the drinking cup, then placed the frame or mould inside another identical mould and removed the drinking cup from its formation mould by suction and next by air blower pressure delivered the cup on a solid mould and with pressure smoothed the cup's surface and squeezed out most of the water, then removed the cup from the pressure mould and placed it on a wire drying form. I have applied for patents on the entire machinery which is continuous automatic and the model showed that one man could produce one ton of finished cups per day at a production cost of about 80 cents per 1,000.

Power Exposition Will Draw from all Industries

Engineers well known in industrial and public utility power generations make up the Advisory Committee which is guiding the National Exposition of Power and Mechanical Engineering. This exposition will open at the Grand Central Palace, New York city, on December 7, at noon and will extend through to December 13 (except the intervening Sunday). It will immediately follow the annual meetings of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers.

The Advisory Committee is keenly alive to the importance of an exposition that will stress the engineering phases of the problems involved in the economical uses of fuel and the more effectual generation and utilization of power. The effect of such an exposition must be far-reaching and the plan outlined by the committee insures a show that will benefit the manufacturer who uses only a small boiler for process steam as well as the engineers of the great cement, ceramics, metallurgical and power generation industries, whose fuel and power problems are extensive and severe.

The list of firms who have already reserved space shows that all apparatus and materials used in harnessing the energy released from fuels will be represented. The general appreciation of the importance of the exposition further insures the showing of the newest devices and best methods.

The program for the week has been arranged so that those interested especially in fuels and power can attend the Technical sessions on these subjects at the annual meeting of the American Society of Mechanical Engineers. Sessions on Ash Handling Machinery, Stokers and Steam Utilization have already been announced; others are to come later and it is probable that the papers on these subjects will be amplified by the exhibits at the exposition.

Hong Kong Paper Trade

[FROM OUR REGULAR CORRESPONDENT.]

Of the total imports of foreign paper into Hong Kong, according to a United States consular report, which decreased from £372,139 in 1920 to £254,832 in 1921, Japan furnished 46 per cent, the United States 15 per cent, Great Britain 13 per cent, and Sweden 12 per cent. Imports of print paper decreased from £314,152 to £207,624, of which Japan furnished 70 per cent, Great Britain 8 per cent, Sweden 6 per cent, and the United States 5 per cent. Imports of old newspapers decreased from £99,182 to £64,494, of which 96 per cent was supplied by the United States.

The United States retained its lead in supplying Hongkong with this product, although total imports decreased from £919,453 in 1920 to £884,765 in 1921. In 1920 the United States furnished 71 per cent, North China 24 per cent, and Japan 4 per cent, while in 1921 the United States supplied 60 per cent, North China 29 per cent, Japan 6 per cent, and Canada 3 per cent.

Normal Timber Cutting Expected in Canada

[FROM OUR REGULAR CORRESPONDENT]

Montreal, Que., October 16, 1922.—From reports received by Hon. Honore Mercier, minister of Lands and Forests, the timber cutting this fall will return to the normal average of the past ten years, which was 1,000,000,000 feet. It was explained in this connection that there have been years in the period when the cutting was higher, but the figure mentioned is considered the normal one.

Poland Paper Company's New Bond Paper

Representatives of the Poland Paper Company, with mills at Mechanics Fall's, Maine, report a new sulphite product of the company which has just been placed on the market, water marked "Waterfalls Bond." The new bond will be manufactured in white and nine colors and in all of the standard weights and sizes.

XUM

TAYLOR, BATES & CO.

Members New York Stock Exchange
Members New York Cotton Exchange

100 Broadway, New York
Tel. Rector 1140

BONDS STOCKS COTTON	Bought and Sold on Commission

BRANCH OFFICE
41 EAST 42nd STREET
Tel. Murray Hill 5631

Importation of Paper

The Fernstrom Paper Company, Inc., will be very glad to serve you whenever it is advisable to place orders in Scandinavia for any kind of wrapping paper.

The Swedish and Norwegian qualities of M. G. and Unglazed Kraft No. 1, white and colored M. G. and Unglazed Pure Sulphite are known the world over for their excellence.

May we have your inquiry?

Fernstrom Paper Company, Inc.
Scandinavian Mills' Representatives
150 Nassau Street New York City

The B Co INC

Quality: *It means more than price*

PULPS

"Hafslund Bear" "Forshaga"
BLEACHED SULPHITE

"Klarafors"
EASY BLEACHING SULPHITE

STRONG UNBLEACHED SULPHITE
"Hurum" "Bamble"
EXTRA STRONG KRAFT; BLEACHED AND BLEACHABLE SULPHATE

"Edsvalla" 50% MOIST "Dejefors" DRY
WHITE SPRUCE—GROUND WOOD

Tonnage available on dock for prompt shipment

THE BORREGAARD CO., INC.
200 FIFTH AVENUE NEW YORK CITY

Whalen Sulphite Pulps

Made from the SITKA SPRUCE of BRITISH COLUMBIA. Noted for Fibre, Color and strength.

SNOWHITE BLEACHED SULPHITE
GLACIER EASY BLEACHING SULPHITE
SWAN STRONG SULPHITE

As exclusive selling agents for the Whalen Pulp & Paper Mills, Ltd., we solicit your inquiries to any of our offices.

Canadian Robert Dollar Co.
LIMITED
VANCOUVER, B. C.

U. S. ADDRESSES
Robert Dollar Co., Robert Dollar Bldg., San Francisco
Robert Dollar Co., 15 Moore Street, New York, N. Y.
Robert Dollar Co., Harris Trust Bldg., Chicago, Ill.
Robert Dollar Co., L. C. Smith Bldg., Seattle, Wash.

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
TUESDAY, OCTOBER 17, 1922.

BLEACHING POWDER.—High prices have continued to reign in this market throughout the past week, available supplies of bleach still being very difficult to locate. Spot prices have remained in the neighborhood of $1.80 per 100 pounds.

BLANC FIXE.—Quoted at $80 to $85 ton on the dry commodity, blanc fixe is still h[illegible] with a fair demand from paper manufacturers. The pulp has been moving equally well at prices ranging from $50 to $55 a ton, works.

CAUSTIC SODA.—While excessively high coal costs and added difficulties of production maintain the irregularity in the caustic soda market, producers report considerable activity of this chemical, prices on the 60 per cent basis commodity holding firm at 2.70 cents a pound, works.

CHINA CLAY.—Clay dealers of New York City are optomistic for the continuance of the good business which has been enjoyed thus far throughout the fall and winter. The demand from paper manufacturing circles, while it has eased up slightly with the advent of more ships for clay transport, still continues in sufficient volume to give the market a strong tone. Imported clays are quoted at $15 and $22 per ton, domestic washed at $8 to $11, and domestic unwashed at $6.00 to $8.50.

CASEIN.—With the coming of substantial fall business to coated paper manufacturers, the demand for Argentine casein has held strong. Increasingly larger quantities of the South American product are finding their way into the domestic markets with the result that prices are easing up to a certain extent. 15 to 17 cents a pound represents the price of casein as quoted in the New York market today.

LIQUID CHLORINE.—No pronounced change over the situation which obtained last week has been noted in the chlorine market. Mills are requiring regular amounts of the chemical, both in 100-lb. cylinders and in tank car lots, and prices range from 5 to 6 cents per pound.

ROSIN.—Grades E, F and G of rosin are still maintaining their increased price level of the past few weeks, holding in the neighborhood of 6.50 cents a pound in barrels of 280 pounds ex dock New York.

SALTCAKE.—Manufacturers of this chemical are still refraining from making quotations on spot saltcake shipment owing to the fact that acid production is still too low to enable them to quote either for present shipment or shipment in the near future. Prices are still high, acid cake holding at $25 to $26 per ton and chrome cake at $20 per ton, works.

STARCH.—Although large quantities of starch are entering into the current production of paper, the abundance of this commodity, owing to the heavy corn crop, is serving to make the price tone easier. Quotations somewhat below the 2.57 cents a pound on bag lots of paper makers' starch are now being made and manufacturers are even able to do better than the 2.47 cents price which was recently ruled for future starch.

SULPHUR.—The slight competition in the brimstone market has enabled producers of the ore to maintain suitable prices throughout the succeeding periods of industrial depression as well as the coal and rail strikes. Sulphur is still listed at the firm price of $18 to $20 per ton.

SULPHATE OF ALUMINA.—Manufacturers of this chemical are still greatly harassed by raw material shortage and coal scarcity. Prices, however, have not advanced to any extent beyond the quoted 2.50 to 2.75 cents a pound for iron free sulphate and 1.50 cents a pound for commercial sulphate in spot lots.

Market Quotations

(*Continued from page 63*)

Solid Ledger Stock.	2.25	@	2.50
Writing Paper.....	2.00	@	2.25
No. 1 Books, heavy.	2.25	@	2.50
No. 2 Books, light.	1.40	@	1.50
No 1 New Manila.	2.75	@	3.00
No 1 Old Manila..	1.50	@	1.75
Container Manila,..	1.35	@	1.40
Old Kraft.....	2.25	@	2.50
Overissue News....	150	@	1.60
Old Newspaper....	1.20	@	1.25
No. 1 Mixed Paper.	1.10	@	1.15
Common Paper....	.80	@	.90
Straw Board, Chip.	.80	@	.90
Binders Bd'. Chip..	.80	@	.90
Domestic Rags—New.			
Price to Mill, f. o. b. Phila.			
Shirt Cuttings—			
New White, No. 1.	11¼	@	.11¾
New White, No. 2	.06	@	
Silicias, No 1....	.06½	@	.07
New unbleached..	.10¼	@	
Washables	.03¾	@	
Fancy	04¾	@	.05¾
Cottons—according to grades—			
Blue Overall....	.05½	@	.05¾
New Blue.....	.02¼	@	.02¾
New Black Soft.	.06¼	@	.06½
New Light Seconds	.02¾	@	.02¾
Khaki Cuttings..	.03½	@	.04¼
Corduroy	.03½	@	.03¾
New Canvass....	.07½	@	.08
New Black Mixed	.04	@	
Old			
White, No. 1—			
Repacked	.06	@	.06½
Miscellaneous ...	.04½	@	.04¾
White, No. 2—			
Repacked	.03	@	.03½
Miscellaneous ...	.03	@	.03¼
Thirds and Blues—			
Repackeed	200	@	2.25
Miscellaneous ...	1.85	@	1.90
Black Stockings....	2.75	@	3.00
Roofing Stock—			
No. 1.....	1.30	@	1.35
No 2.....	1.20	@	1.25
No 3.....	1.10	@	1.15
No. 4.....	110	@	1.15
No. 5A.....	1.05	@	110
B.....			nominal
C.....			nominal

BOSTON

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.08½	@	.65
Ledgers	.09	@	.55
Writings	.08	@	.42
Superfine	.15	@	.22½
Fine	.15	@	.18
Books, S. & S. C...	.07½	@	.12
Books, M. F.....	.06½	@	.10
Books, coated	.09	@	.16
Label	.08½	@	.13
News, sheets.....	4.50	@	4.75
News, rolls.....	4.00	@	4.25
Manilas—			
No. 1 Manila...$5.50		@	7.00
No. 1 Fiber.....	.07½	@	
No. 1 Jute.....10.50		@	12.50
Kraft Wrapping....	.06½	@	.12
Common Bogus....	3.00	@	3.50

Boards

(Per Ton Destination)

Chip $60.00		@	65.00
News, Vat Lined..62.50		@	65.00
Wood, Vat Lined...70.00		@	
Filled News Board..62.50		@	65.00
Solid News Board..70.00		@	75.00
S. Manilla Chip...70.00		@	75.00
Pat. Coated 85.00		@	92.50

Old Papers

Shavings—			
No. 1 Hard White	4.25	@	4.50
No. 1 Soft White	3.30	@	3.45
No. 1 Mixed....	1.50	@	1.75
Ledgers & Writings	1.75	@	2.00
Solid Books	2.40	@	2.50
Blanks	1.70	@	1.80
No. 2 Light Books..	1.75	@	1.80
Folded News, overissues 22.00		@	25.00
Gunny Bagging ...	.85	@	.90
Manila Rope.....	5.75	@	6.00
Common Paper....	.80	@	.90
Old News.....	.80	@	.90
Old Kraft	2.00	@	2.25

TORONTO

[FROM OUR REGULAR CORRESPONDENT]

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted.....	.12	@	.13½
Dark tinted.....	.13½	@	.15
Ledgers (sulphite).	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)..	3.50	@	
Sheets (carloads).	—	@	4.25
Sheets (2 tons or over)	—	@	4.50
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho. 14.00		@	—
No. 2 Coated and litho. 13.00		@	—
No. 3 Coated and litho. 12.25		@	—
Coated and litho., colored 14.25		@	—
Wrapping—			
Grey	4.75	@	—
White Wrap.....	5.50	@	—
"B" Manila.....	5.75	@	—
No. 1 Manila ..	6.75	@	—
Fiber	6.75	@	—
Kraft, M. F.	8.00	@	—
M. G.	8.15	@	—

Pulp

(F. o. b. Mill)

Ground wood.....$30.00		@	40.00
Sulphite easy bleaching 65.00		@	70.00
Sulphite news grade.60.00		@	65.00
Sulphite, bleached..95.00		@	100.00
Sulphate 75.00		@	—

Old Waste Papers

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut..	4.00	@	—
Soft White Book Shavings	3.90	@	—
White Blk News	2.10	@	—
Book and Ledger—			
Flat Magazine and Book Stock(old)	2.50	@	—
Light and Crumpled Book Stock	2.15	@	—
Ledgers and Writings	2.50	@	—
Solid Ledgers....	2.50	@	—
Manilas—			
New Manila Cut.	2.10	@	—
Printed Manilas..	1.75	@	—
Kraft	2.50	@	—
News and Scrap—			
Strictly Overissue	1.25	@	—
Folded News....	1.50	@	—
No. 1 Mixed Papers	1.20	@	—
Domestic Rags—			
Price to mills, f. o. b. Toronto.		Per lb.	
No. 1 White shirt cuttings	.11¼	@	.11½
No. 2 White shirt cuttings	.06½	@	—
Fancy shirt cuttings	.06	@	.06¼
No. 1 Old whites	.04	@	—
Thirds and blues	.02	@	.02½
		Per cwt.	
Black stockings..	2.50	@	—
Roofing stock:			
No. 1.....	1.50	@	—
No. 2.....	1.40	@	—
Roofing stock:			
Manila rope.....	.06	@	.06¼
No. 2.....	.01½	@	—
Gunny bagging....	1.00	@	1.25

The Home of Quality

FACTORY
132ND TO 133RD ST. & BROOK AVE

PAPER BAGS

Sacks and Specialties

ESTABLISHED 1901

SCHORSCH & CO.

Manufacturers

500 East 133d Street : New York

This Registered Trade Mark Octagon

on a Paper Bag Vouches for Its Good Quality

SUPERIOR CHEMICAL CO.

JOLIET, ILLINOIS

Manufacturers

PAPER MAKERS' and FILTER

ALUM

The Union Sulphur Company

Producers of the Highest Grade Brimstone on the market . .

ABSOLUTELY FREE FROM ARSENIC OR SELENIUM

The Largest Sulphur Mine in the World

CALCASIEU PARISH, LOUISIANA

Main Offices: Frasch Building, 33 Rector Street, New York

Clay

300 Tons daily

Satisfactory deliveries of the *clay* you prefer at prices you will consider reasonable—such is M-E service!

Let us submit samples and quote you.

AMERICAN MADE FOR AMERICAN TRADE

THE MINER EDGAR CO

110 William Street
New York

English China Clays
ECCO
CLAYS
Sales Corporation

33 WEST 42ND ST., NEW YORK

Ecco Clays 500,000 Tons Annually

DELIVERIES FROM PRODUCER INSURE AND ENABLE YOU TO PRODUCE UNIFORM PAPER

Highest Grades Filler and Coating Clays

XUM

WANT AND FOR SALE ADVERTISEMENTS

HELP WANTED

WANTED—Boss Machine Tender. Must be capable, thoroughly experienced, give results and willing to prove himself on two Cylinder Machines making Bristol Boards. Good opportunity with chance of advancement. State experience, send copies of references in first reply. Address, Box 5426, care Paper Trade Journal. O-26

WANTED—A competent Mill Wright to take care of repairs for Two Machine Tissue Mill. Reply immediately. Address, Box 5464, care Paper Trade Jaurnal. O-26

WANTED—Machine Tender, Beater Engineer and Cutterman for M. F. Book Mill. Furnish references with reply. Address, Box 5468, care Paper Trade Journal. O-19

WANTED—Machine Tender, for small Cylinder Tissue Machine. Elderly man preferred. Address, Box 5508, care Paper Trade Journal. O-19

WANTED—Night Superintendent to take charge of mill making book and bond and ledgers. State fully your qualifications and give references in first letter. Address reply to Box 5487, care Paper Trade Journal. O-19

WANTED—3 Machine Tenders and one Beater Engineer to run machines and beaters making book, bond and ledger. Only first class men with experience making these papers need apply. Address reply to Box 5488, care Paper Trade Journal. O-19

WANTED—First Class Fourdrinier Man for night superintendent. Advise full particulars as to experience and give references in first letter. Address, Box 5489, care Paper Trade Journal. O-12

WANTED—First class back tenders and winder men for Fourdrinier running 300 feet. Advise full particulars as to experience and give references in first letter. Address, Box 5490, care Paper Trade Journal. O-19

WANTED—Superintendent who thoroughly understands a Harper Machine, manufacturing tissues and light weights. Must understand thoroughly the preparing of stock and also the steam end. Mill located in good city. Copies of references must accompany application. No drinkers need apply. Address, Box 5498, care Paper Trade Journal. O-19

WANTED—A thoroughly capable and experienced Trimmer Man. Wages 50 cents per hour. Fifty hours per week. Address, Box 5511, care Paper Trade Journal. O-26

WANTED—Salesman, who has large acquaintance with Paper Jobbers, Manufacturers and Consumers, to sell stock in new paper mill. For particulars address Box 5512, care Paper Trade Journal. N-2

WANTED—Draftman. New York City. Experienced in Paper and Pulp Mill Machinery. Must understand German and English. State full particulars, experience, and salary expected. Address, Box 5513, care Paper Trade Journal. O-19

WANTED AT ONCE

for Board Mill one first class Beaterman, two first class Back Tenders and one Machine Tender. Give age, references, experience and where last employed in first letter. Address, National Paper Products Company, Stockton, California. O-19.

HELP WANTED

WANTED—Machine tender, experienced on Glassine Papers. Eight hour shift. Address, Box 5510, care Paper Trade Journal. O-19

WANTED—Chemist who can invest $5,000 in two Machine Mill making Bond and Writing Papers and who is competent to act as assistant to President and Manager of plant. Address, Box 5514, care Paper Trade Journal. O-26

WANTED — Salesman, qualified to sell waxed and specially treated papers, plain and printed in New York City, Philadelphia and surrounding territory. Write, stating age and experience, to Box 5515, care Paper Trade Journal. O-26

WANTED

Successful Waxed Bread Wrapper Salesman. Unusual, well paying, permanent position. Answers with age, experience, and references will be treated absolutely confidential. Address, Box 5528, care Paper Trade Journal. N-2

SITUATIONS WANTED

WANTED—Position as cylinder machine tender. Have had ten years' experience on chip news, manilas and Patent Coated. Address, Box 5474, care Paper Trade Journal. O-19

CHEMIST AND CHEMICAL ENGINEER with previous experience in Sulphite and Paper Mills, is open for engagement. Now employed. Good references. Address, Box 5475, care Paper Trade Journal. O-19

BOSS FINISHER of wide experience in Box Boards, Book, Bond and all Cylinder and Fourdrinier Specialties. Seeks engagement with good mill that will appreciate a practical leader who can get production and has a thorough knowledge of Finishing Equipment. Address, Box 5476, care Paper Trade Journal. O-19

SUPERINTENDENT wants position; have life time experience in the paper business. Making Light Waxing Bond, Book, Kraft, Wrapping Board, Colors on Fourdrinier, Harpers, and Cylinders. Address, Box 5477, care Paper Trade Journal. O-19

PAPER SALESMAN—New York City, who can produce large amount of business. Will manage sales force, represent mill agency, company or mill. Drawing account on commission basis. Address, Box 5486, care Paper Trade Journal. tf

MASTER MECHANIC with a large experience in construction, reconstruction and efficiency, desires to make change. Address, Box 5383, care Paper Trade Journal. tf

MANUFACTURER'S HEPRESENTATIVE desires mill accounts consisting of wrapping Paper, Toilet Paper, Paper Towels, Paper Napkins, Paper Specialties and Tissue Paper in jumbo rolls. Have years of evperience in paper industry and selling to big trade. Address, Box 5520, care Paper Trade Journal. O-19

BOSS MACHINE TENDER wishes to make a change. Employed for last five years in four machine mill. Thoroughly reliable and efficient. Address, Box 5519, care Paper Trade Journal. O-26

SITUATIONS WANTED

WANTED—Position as assistant or tour foreman with a mill desiring a practical man with twenty years' machine experience on sulphite and rag papers. Married, ambitious, good references. Address, Box 5494, care Paper Trade Journal. N-9

MAN with sound Paper Mill experience in Accounting, Costs, Office Management, Organization and Production Methods, seeks responsible position. Address, Box 5507, care Paper Trade Journal. N-2

POSITION as Superintendent or Foreman. Twenty-five years' practical experience on Rope, Kraft, Roofing, Tissues, Board, etc. Expert in remodeling vats to suit all grades of cylinder papers. Address, Box 5516, care Paper Trade Journal. O-19

MASTER MECHANIC with a large experience in construction, reconstruction, maintenance and efficiency, desires to make a change. Satisfaction guaranteed. Address, 5517, care Paper Trade Journal. O-19

POSITION WANTED as master mechanic or chief millwright. Ten years' experience in board and roofing mills. First class references. Will go anywhere for good steady position. American, married, 40 years old. Address, Box 5518, care Paper Trade Journal. tf

BOARD MILL SUPERINTENDENT open for position. Twenty-two years' experience. Able to get production. Am thoroughly competent and reliable. Will give full particulars upon request. Address, Box 5521, care Paper Trade Journal. O-19

WANTED—Position as boss calender man. Thoroughly understands the care of supercalenders and cutters. Can furnish best of references. Address, Box 5522, care Paper Trade Journal. N-2

YOUNG MAN, 23, two years' College Education, desires to get in touch with concern requiring someone with knowledge of Pulp and Paper Mill Chemistry, and generally familiar with mill operation. Have had four years manufacturing experience in responsible capacity. References. Address, Box 5523, care Paper Trade Journal. N-2

MECHANICAL ENGINEER, 15 years, experience with sulphite, ground wood and news paper mills, is open for engagement. Now employed. Good references. Address, Box 5524, care Paper Trade Journal. N-2

BOSS FINISHER—Life experience in the Paper Trade 16 years as Boss Feeder in mills making Ledgers, Bonds, Writings, Linen, Book, Catalogue, Envelopes, lithographic, also Rope Papers, Manillas, Kraft. Is open for engagement. Address, Box 5525, care Paper Trade Journal. O-26

CHEMIST OR DRAFTSMAN—Graduate of Swedish High School. 3 years' experience on Sulphite and Pulp. Seeks connection with good Mill. Swedish, 28 years old. Best references. Address, Box 5506, care Paper Trade Journal. O-19

BEATER ENGINEER would like to make a change. Have had experience on all grades of Box Board, Bond, Ledger and 3 years' experience on color, specialties. Would like to connect with a mill that would run steady. I am 36 years old. Married and steady. Address, Box 5502, care Paper Trade Journal. O-26

TECHNICAL ADVISER & PAPER MAKER, young man, 32 years of age; technical education, 10 years' experience covering Physical and Chemical Testing of Pulps and Paper, Chemicals, etc.; Experimental and Development Work on Cotton Linters, Long Leaf Pine, Sugar Cane (Bagasse), etc. Have a thorough knowledge of Pulp and Paper Machinery and Operation of same. If you have a position open in your organization which requires technical and practical knowledge of Paper Making Processes let me confer with you personally regarding my experience, ability, etc. Best of references. Open October 1st. Address, Box 5458, care Paper Trade Journal.

XUM

SITUATIONS WANTED

WELL EDUCATED YOUNG MAN with 12 years' practical experience, wishes position as superintendent, assistant superintendent or assistant manager, with any reliable concern. Will go anywhere. Have specialized on the making of paper for the manufacture of Hard fibre products, with very good results. Address, Box 5493, care Paper Trade Journal. N-2

YOUNG MAN having had several years' mill office experience, desires to connect with new organization as assistant to superintendent where there is good opportunity for advancement. Can furnish A-1 references as to ability. Address, Box 5495, care Paper Trade Journal. O-26

PULP AND PAPER CHEMIST with thorough technical training and twelve years' practical experience with present employers, wishes to change to progressive company desiring to improve efficiency of manufacturing operations. Competent to organize and direct technical department for testing, control of mill operations, experimental and research work. Address, Box 5452, care Paper Trade Journal. O-19

MANUFACTURERS of Book, Writing and Sulphite Bond. If it was proven to your personal satisfaction that the tonnage of your plant could be increased 15 to 25 per cent without lowering your particular standard of quality, but with actual saving in fuel and power costs, would you be interested? If so, a progressive papermaker invites your inquiry. Experienced in eliminating troublesome manufacturing conditions and defects. Object in view not necessarily a position, but your good will would be appreciated. Address, Box 5503, care Paper Trade Journal. O-26

FOR SALE

FOR SALE—Deane Duplex Fire Pump, 14x 8½x10, capacity 600 gallons per minute. Address, Box 5482, care Paper Trade Journal. tf

FOR SALE—One right hand 18x36 heavy duty double eccentric Nordberg Corliss Engine, 13 feet diameter by 27-inch face fly wheel. One left-hand 18x36 heavy duty double eccentric Nordberg Corliss Engine, 13 feet diameter by 27 inches face, fly wheel. Inspection and prices may be obtained from Hommel-Ross Fibre Corporation, Hopewell, Pa. O-19

ASBESTOS FELT PAPER MILL FOR SALE

This is one of the longest established Paper and Asbestos Felt Mills in the United States. It is located within 10 miles of Boston. The plant is fully equipped for making asbestos products or roofing felts, and can be adapted for making paper specialties, or for other manufacturing purposes.

The property includes
Six acres of land
Complete plant and paper making equipment
Five warehouses
Settling pond
Perpetual water rights
Can be operated by steam or water power.

Address
John Roberts & Son Co., Waltham, Mass.

MISCELLANEOUS

In the Matter of the Great Eastern Paper Company, Limited, Authorized Assignor.

TIMBER LIMITS, PULP AND SAW MILLS

NOTICE OF SALE BY TENDER

NOTICE IS HEREBY GIVEN that, pursuant to the Bankruptcy Act, The Royal Trust Company, Montreal, as Authorized Assignee of the property of the Great Eastern Paper Company, Limited, Authorized Assignor, duly authorized for the purpose, offers for sale by tender all the moveable and immoveable property of the Authorized Assignor, including approximately 1400 acres of freehold timber lands situated in the Township of Denoue, in the County of Gaspe, in the Province of Quebec, being Blocks "B" and "C" of the said Township; 450 square miles more or less of timber limits under license from the Crown, consisting of Limits River Magdalen Nos. 2, 3, 4, 5 and 6 North, Limits River Magdalen Nos. 1, 2 and 3 South, Limits River Pierre and Claude No. 29, Township of Taschereau No. 30 and Township of Denoue No. 19, together with water powers, saw mill, (Pulp mill partially damaged by fire), machinery, equipment, stock, stores, supplies and provisions, and all the issued capital stock of the Magdalen River Valley Railway Company. All open for inspection.

The sale is to be subject to all existing contracts and a reserve of all accounts receivable and cash on hand.

Tenders for the above will be received by The Royal Trust Company, as Authorized Assignee, up to and including the 3rd day of November, 1922.

The sale will be made en bloc for cash and any intending purchaser must enclose with his tender as a deposit an accepted cheque of a Chartered Bank in Canada, to the order of The Royal Trust Company, as Authorized Assignee for a sum equal to ten per cent. of the amount of the tender, which deposit, in the event of the acceptance of the tender, will be applied on account of the purchase price, and if the tender is not accepted will be returned. Should any purchaser whose offer has been accepted fail to comply with the conditions of the sale or to pay the full amount of the purchase price within one week from the acceptance of his tender, then, in such event, the said deposit shall be forfeited and shall belong absolutely to The Royal Trust Company, as Authorized Assignee, as liquidated damages.

The Authorized Assignee shall not be bound to accept the highest or any tender.

Information may be obtained by application to the undersigned.

THE ROYAL TRUST COMPANY,
Authorized Assignee,
105 St. James Street, Montreal.
0-26

MISCELLANEOUS

SHARTLE

can fill your requirements in used or new machinery.

THE SHARTLE BROTHERS MACHINE CO.
Middletown **Ohio**
TF.

FOR SALE

A FIVE CYLINDER BOARD MILL for sale at a very attractive bargain. Water power 200 horse, electric power, very reasonable; 72-inch machines. Further particulars on application. Address, Box 5526, care Paper Trade Journal. O-19

FOR SALE—6 Farnum Drives. Complete Triple-Deck frames for 44 Dryers. Will arrange terms to suit. Chesapeake Paper Board Co., Baltimore, Maryland. tf

MISCELLANEOUS

Rebuilt Paper Mill Machinery

In Stock and Guaranteed
Not Where Is and As Is

FOURDRINIER TISSUE MACHINE—One 68".
FOURDRINIER PARTS—Pusey & Jones 118", 100". Kutter Trowbridge 96"
PRESS PARTS FOR PAPER MACHINES—Pusey & Jones bell crank housing with rolls 18" x 117". Black & Clawson swing arm housing.
DRYERS—Four 48" x 111", one 36" x 80", two 36" x 73", four 48" x 68", one 84" x 67", eleven 42" x 66", two 36" x 48", four 20" x 39".
CHILLED CALENDERS—One 86" six roll, one 82" five roll, one 66" five roll, one 54" five roll, two 58" five roll.
DILLON DOCTOR—For machine calender 60" to 144" face.
SLITTERS & WINDERS—One 120" Warren, one 108" Kidder, one 110" two drum Moore & White.
REELS—Pusey & Jones two drum, Rice, Barton & Fales two drum.
BEATERS—Four N. & W. 72" x 42", one Dilts 62" x 50" iron tub, one Jones 62" x 52", one Dillon 60" x 48", two Emerson 54" x 60", three Downingtown 54" x 42" iron tub, two Emerson 53" x 52", seven Horne 36" x 36", two No. 2 Claflins, two No. 1 Claflins. One 36" x 26" N. & W.
JORDANS—One Appleton Wagg Majestic, two No. 2 Dillon Improved, one Large Horne, two Monarch, one Jones Standard, one Pope brushing engine.
SCREENS—Two 12 plate, two 8 plate, open side Packer screens. Two 6 plate, one Moore & White auxiliary.
STUFF PUMPS—Deane triplex 9" x 8", Gould triplex 8" x 10", Sandusky triplex 4" x 6", Moore & White duplex 8" x 12", One Beloit duplex 6" x 14". Two 6" Post.
REVOLVING SHEET CUTTERS—One 82" and 62" Clark, five 61" Hamblets, four 61" Finlays, one 50" Hamblet diagonal, one 42" Finlay.
REAM CUTTERS—One 48" Acme, one 45" Holyoke Seybold.
SUPER CALENDERS—One 52" Holyoke, one 45", one 42", one 36".
WET MACHINES—Four 72" Bagley & Sewall Hydraulic, one 48" Noble & Wood. One Manistee Hog Chipper. One Ryther & Pringle Shredder. We have a large number of pumps and over five hundred calender, press and couch rolls in stock.

FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge 40, Mass.

XUM

FOR SALE

We have the following Fourdrinier Paper Machine Felts for sale:

3—38x82 First Press Felts. Mfd. by F. C. Huyck & Son.

5—36x82 Second Press Felts. Mfd. by F. C. Huyck & Son.

1—36x82 First Press Felts. Mfd. by Albany Felt Co.

2—38x82 First Press Felts. Mfd. by Albany Felt Co.

All of the above felts are brand new and have never been taken from original wrapper. We guarantee the above felts to be absolutely perfect in every way. We are offering same at 40% discount from regular list price. Wire us your order.

HOLDEN PAPER COMPANY, Newburg, N. Y.

FOR SALE

RECEIVER'S SALE—Pursuant to an order of the Court of Common Pleas of Hamilton County, Ohio, in cause No. 181157 on the docket of the said court, Charles R. Walker, as Receiver, will offer at public auction sale on the premises at 326 Wyoming Ave., Lockland, Cincinnati, Ohio, at 10:00 A. M., Wednesday, October 25th, 1922, the following: Leasehold estate of the premises at 326 Wyoming Avenue under a month to month tenancy: machinery, tools, stock, furniture, fixtures, patent applications and inventions, goods, chattels, rights, credits, effects, books, papers, accounts receivable, bills and notes receivable, and all other assets and property of the concern known as The Multiproof Company, in his custody as such Receiver. Property and assets (except credits) inventoried at approximately $22,000.00. Accounts receivable and bills and notes receivable (to be sold separately) estimated at approximately $9,000.00. Terms of sale: To the highest bidder, for cash, or on terms to be announced at sale. Charles R. Walker, as Receiver; Robert L. Black, Attorney for Receiver. O-26

MISCELLANEOUS

AN OLD AND WELL ESTABLISHED PAPER BOX FACTORY with first class selling and manufacturing facilities, would like to manufacture or sell kindred lines and specialties on the Pacific Coast. Mail address, Alexander M. Turner, 126 Fifth Avenue, New York, N. Y. O-19

WANTED—Three stacks super calenders. Must be in a-No. 1 condition. Bayless Manufacturing Corporation, Austin, Pa. O-26

CASH PAID for old United States Confederate and foreign postage stamps, used on letters prior to 1870. Send samples. James Hardy, 4522 Forrestville Ave., Chicago, Ill. oam-1-yr

WANTED—Jordan, Breaker, Wet Machine, Dryer, for Binder Board Mills. Address, Box 5527, care Paper Trade Journal. O-26

GIBBS-BROWER BULLETIN

For Sale—Cylinder Paper Machine

Twelve molds 28" x 72". Five pair primary presses, three pair press rolls 14" in diameter. 74—36" x 68" dryers complete with frames and drives arranged triple-deck. Two stacks of calenders, 5 rolls each, 14" in diameter. Two single cutters, one 68" and the other 48" knife. Two small machines could be made up from this large one if desired. Price very reasonable for quick action. Immediate delivery.

For Sale—Calender Stack

One Farrel Seven-Roll. Bottom Roll 18" diameter. Second, third, fourth, fifth and sixth rolls 12" diameter. Seventh roll 14" in diameter. All rolls 62" face. Calender stack complete in every way. Provided with hydraulic lift complete with hand pump. Equipped with Warren Automatic Paper Feed Doctors, Pusey and Jones steam joints driven from right hand side. Stack strictly new, used only a few times. Price reasonable. $4,500 f. o. b. Mass. New similar stack would cost at least two or three times this amount.

GIBBS-BROWER COMPANY

Paper and Pulp Mill Brokers

261 Broadway **New York City**

Telephone—Barclay 8820

Chicago Address—166 West Jackson St.

Telephone—Wabash 1368

OUR MOTTO: "SERVICE FIRST"

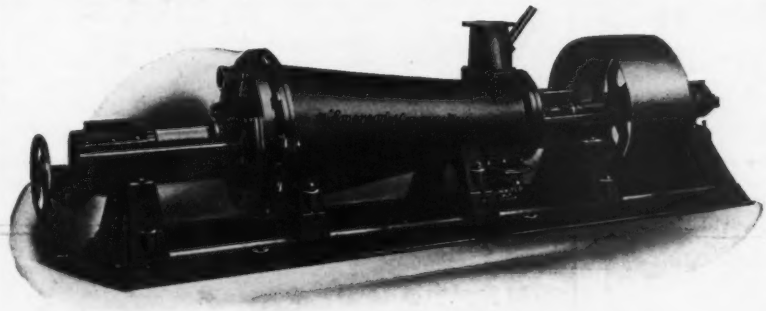
MISCELLANEOUS

WANTED: BOX BOARD MACHINE

Trim preferred 116" or wider. Must be in excellent condition. Give full description of machine and equipment, and price f. o. b. cars shipping point. Address Box 5497, care Paper Trade Journal.

O—19

The Shartle Bros. Machine Co. Middletown, Ohio



EMERSON MFG. CO.

LAWRENCE, MASS.

See the Second-Hand Machinery ads and note the ABSENCE of

EMERSON BEATING ENGINES

They seldom wear out and are never thrown out. PERFECT CIRCULATION. NO "PADDLING."

The "EMERSON" JORDAN

does its work with half the power required by others of no greater capacity.

WRITE FOR DETAILS

Friend-Makers **LAWRENCE GROCERS' BAGS** **Money-Makers**

THE LAWRENCE BAG CO., MIAMISBURG, O

Coe Roller Dryers

for drying wall board, plaster board and other flat products.

We maintain an experimental dryer in our plant and on this we can test out gratis, samples of your product, under different conditions. This gives you accurate data as to its drying and we can build you a machine to duplicate these results.

THE COE MFG. CO.

Painesville, Ohio

COLORS FOR

PAPERMAKERS

KUTTROFF, PICKHARDT & CO.

INCORPORATED

128 Duane Street - - New York

BOSTON - 157 Federal St. PHILA. - 111 Arch St.

PROV. - 52 Exchange Pl. CHI. - 305 W. Randolph St.

ESTABLISHED 1842

FOURDRINIER WIRES

DANDY ROLLS
CYLINDER
MOLDS

CHENEY BIGELOW WIRE WORKS

SPRINGFIELD, MASS.

MANUFACTURERS

Paper Mill Wire Cloth, Bank and Office Railings and Grill Work

XUM

FREDERICK L. SMITH
21 EAST 40TH STREET, NEW YORK
PULP AND PAPER MILL ENGINEER

GEORGE F. DREW
MILL ARCHITECT AND ENGINEER
Consulting and Operating
BRUNSWICK, MAINE
SPECIALTY: Pulp, Paper and Saw Mills
Cotton, woolen, worsted, cordage, silk mills, and their equipment.
Appraisals, adjustments.

UNITED STATES TESTING COMPANY, Inc.
316 Hudson Street CHEMISTS New York City
Microscopical Examination, Physical Tests and Chemical Analysis of Paper. Official Chemists to the American Paper and Pulp Association, Association of American Woodpulp Importers, etc.
We analyze Fuels, Chemicals, Dyestuffs, Intermediates, Gasoline, Oils, Paints, Soaps, Greases, Waxes, Water for Drinking or Boiler Purposes, Woodpulp, etc.

WILLIAM T. FIELD
Consulting Engineer
296 Broadway, New York, N. Y. — Flower Bldg., Watertown, N. Y.
DESIGNS ESTIMATES REPORTS

HARDY S. FERGUSON CONSULTING ENGINEER
Member AM. SOC. C. E., Member AM. SOC. M. E., Member Eng. Inst. Can.
200 FIFTH AVENUE, NEW YORK CITY
Paper, Pulp and Fibre Mills, Including Building and Complete Mechanical Equipment, Water Power Development, Dams, Storage Reservoirs and Other Hydraulic Structures, Examinations, Reports, Estimates of Cost, Designs, Specifications, Valuations

VITALE & ROTHERY
FOREST ENGINEERS
527 Fifth Avenue New York, N. Y.

GEORGE F. HARDY
M. AM. SOC. C. E., M. AM. SOC. M. E., M. ENG. INST. CAN.
Mill Architect and Consulting Engineer
Langdon Building, 309 Broadway, New York
SPECIALTY: Paper, Pulp and Fibre Mills, Water Power Developments, Steam Power Plants, Plans and Specifications Evaluations, Reports, Consultation
Cable Address: "Hardistock," A B C 5th Edition, Bedford, McNeill. Western Union—Bentley's.

J. O. Ross Engineering Corp.
30 E. 42nd St.
CHICAGO NEW YORK CITY BOSTON
VAPOR ABSORPTION SYSTEMS

J.H. WALLACE & COMPANY. TEMPLE COURT BUILDING NEW YORK CITY, U.S.A. CABLES, TRIPLEX, N.Y.
PULP PAPER AND POWER PLANTS
ENGINEERS & CHEMISTS INDUSTRIAL DESIGN PLANT IMPROVEMENT LABORATORY TESTS

THOMAS L. TOMLINES & SON
CONSULTING ENGINEERS
ASSOC. M. AM. SOC. C. E.; M. AM. SOC. M. E. — 317-319 CITY BANK BLDG., SYRACUSE, N. Y.
Paper, Pulp and Fibre Mills, Hydraulic Developments, Hydro-Electric Plants — Steam Power Plants, Plans and Specifications, Efficiency Engineering
CONSULTATION AND REPORTS

ATLANTA BALTIMORE BOSTON CHICAGO CHARLOTTE, N. C. CLEVELAND DETROIT
SAN FRANCISCO — PHILADELPHIA

MORSE CHAIN DRIVES
A POWER SAVER FOR POWER USERS
Morse Chain Co. Ithaca, N. Y.
HIGH SPEED SILENT RUNNING FLEXIBLE GEARING FOR POWER TRANSMISSION.
Address Nearest Office
KANSAS CITY MINNEAPOLIS MONTREAL NEW YORK ST. LOUIS PITTSBURGH

SAFE, RELIABLE
TIMBER ESTIMATES
at a few cents an acre
JAMES W. SEWALL
Old Town, Maine — *Forest Engineer* — Davidson Bldg., Washington, D. C.
Largest Cruising House in America

THE BRADLEY SALES AGENCY
Is open to listings of Eastern Canadian Timberlands. Hardwood and Freehold Pulpwood Lands are in active demand at present.
205 St. James St., Montreal, P. Q.
512 Bank of Montreal Bldg.

H. B. PRATHER & CO.
CONSULTING ENGINEERS
PAPER AND PULP MILLS
REPORTS, PLANS, ESTIMATES, SPECIFICATIONS, SURVEYS AND SUPERVISION OF CONSTRUCTION
KIRBY BLDG. CLEVELAND, OHIO

"A type to meet every stoker need"
SANFORD RILEY STOKER CO.
WORCESTER, MASS.
Makers of
RILEY UNDERFEED STOKERS
BOSTON NEW YORK CINCINNATI PHILADELPHIA CHICAGO PITTSBURGH ST. PAUL

MURPHY IRON WORKS
DETROIT, MICH.
Makers of
MURPHY AUTOMATIC FURNACES
BUFFALO CLEVELAND DENVER

THE
MANAGEMENT ENGINEERING AND DEVELOPMENT CO.
7TH FLOOR CITY NATIONAL BANK BLDG.,
DAYTON, OHIO.

DESIGN, CONSTRUCTION AND OPERATION
OF
PULP, PAPER AND FIBRE MILLS
WATERPOWER DEVELOPMENT
STEAM POWER PLANTS
PLANS AND SPECIFICATIONS
EVALUATIONS AND REPORTS
CONSULTATIONS

Stebbins Engineering & Manufacturing Co.
Watertown, N. Y.
Designers, Equippers and Operators
Sulphite, Soda and Sulphate Pulp Mills
Digester and All Acid Proof Linings

E. BUTTERWORTH & CO., Inc.
CHARLES H. WOOD, Pres. *LEWIS JENNINGS, Treas.*
Boston Office, 136 Federal St. New York Office, 1123 Broadway
PAPER MAKERS' SUPPLIES
Agents for "S" Brand and Snow Brand Bleached Sulphite Pulp

Salomon Bros. & Co.
IMPORTERS OF
All Grades of Rag and Paper Stock
200 FIFTH AVENUE, NEW YORK
COTTON WASTE :: LINTERS :: RAMIE

SLITTERS and SPECIAL MACHINES
for use in paper industry
C. BENNINGHOFEN & SONS
Hamilton, Ohio
Send us your requirements regardless of what they may be

SHERMAN PAPER COMPANY
Manufacturers of Roll Newsprint
ENTIRE PRODUCT FOR 1922 CONTRACTED
Mills at
Falls Mills, Great Bend and Lafebvre, N. Y.
Main Office
Trust Co. Building, Watertown, N. Y.

UNION TALC COMPANY
Finest Grades of Agalite
132 Nassau Street New York

FELTS
H. WATERBURY & SONS CO.
ORISKANY, N. Y.

Manufacturers of All Special Small Roll Products

Adding Machine, Cash Register, Die Wiping, Hand Rolls, Etc., Etc.
PAPER MANUFACTURERS CO., Inc., Phila., Pa.

Penn Paper and Stock Company
PACKERS OF ALL GRADES OF
WASTE PAPER
240 N. FRONT STREET PHILADELPHIA

WOOD FLOUR
Various degrees of fineness and either fibrous or granular.
Made from first growth Spruce and Pine, by approved processes.
UNION WOOD FLOUR CO., INC.
Hudson Falls, N. Y.

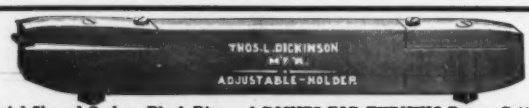
STRATFORD PAPER CO.
160 Cornelison Ave.
Jersey City, N. J.
High Grade Fourdrinier Tissues in Stock for Immediate Delivery

Paper Stock
NOW IS THE TIME TO BUY OUR RAW MATERIALS
Out of our forty different grades of paper stock you are assured a steady, reliable source for procuring raw materials in practically every branch of paper making.
Having specialized for 35 years in this one field you can depend upon a clean, well-packed, uniform product throughout; fulfillment of delivery promises; and because of our output of 300 tons daily, big tonnage at all times. Write us your wants.
Mendelson Bros. Paper Stock Co., General Offices: 910 So. Michigan Ave., Chicago, Ill.
Long Distance Phones, Harrison 2340 and 5557

SLITTERS AND WINDERS
SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J.

Established 1895
DANIEL M. HICKS
(INCORPORATED)
PAPER MILL SUPPLIES
200 FIFTH AVENUE, NEW YORK CITY

CRANE BRASS VALVES



Special Shaped Carbon, Black Diamond POINTS FOR TURNING Paper, Cotton Chilled Iron and Hardened Steel Calender Rolls, Hard Rubber, Fibre, etc.
Successor to John Dickinson. Established 1796.
Agents for Great Britain, C. W. BURTON, GRIFFITHS & CO., Ludgate Square, London.
Manufactured by THOS. L. DICKINSON 28 Gold St. NEW YORK

WILLIAM B. DILLON
DILLON & BARNES
Paper Mill Products and Supplies
52 VANDERBILT AVENUE, NEW YORK
Telephone, 7353 Murray Hill

The John W. Higman Co.
29 Broadway New York City
QUALITY CLAYS
FOR ALL PURPOSES
ENGLISH AND AMERICAN

TRADE **CAMACHINE** MARK
SLITTERS AND ROLL-WINDERS
WINDERS REWINDERS
CAMERON MACHINE CO. BROOKLYN, N.Y.

The Ashcroft Paper Tester **The Ashcroft Thickness Gauge**
Actual necessities for all those who make, sell or purchase paper in any form. The thousands in daily use testify to their efficiency.
THE ASHCROFT MFG. CO.
119 West 40th Street New York 29 North Jefferson Street Chicago, Ill. 19 High Street Boston, Mass.
Canadian Sales Agents: The Canadian Fairbanks Morse Co., Montreal and Toronto.

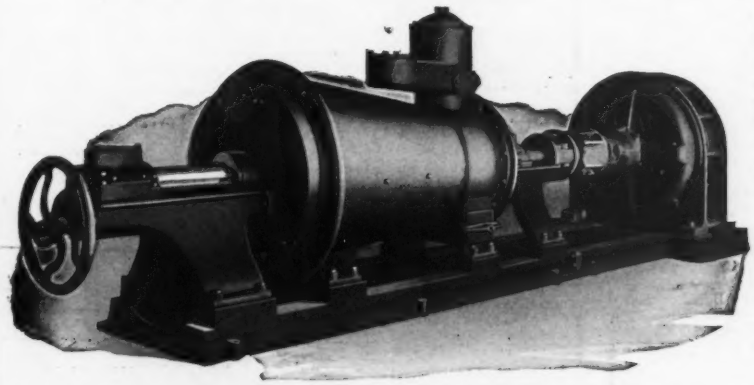
THE WATERBURY FELT CO.

FELTS and JACKETS
For Every Grade of Paper and Pulp
Correspondence and Orders Solicited
Manufactured at
SKANEATELES FALLS
New York

GRISSINGER
Patented
AUTOMATIC TUBE MACHINE
Wire Stitched Tube
TOILET PAPER MACHINERY
Patented { June 24, 1913. August 10, 1915.
GRISSINGER MACHINE WORKS
PHILADELPHIA, PA.

BLUE RIDGE FIBRE
Bleached Soda Pulp
Manufactured and sold by
COLUMBIAN PAPER COMPANY
BUENA VISTA, VIRGINIA
Samples and prices upon application

THE DILLON JORDAN



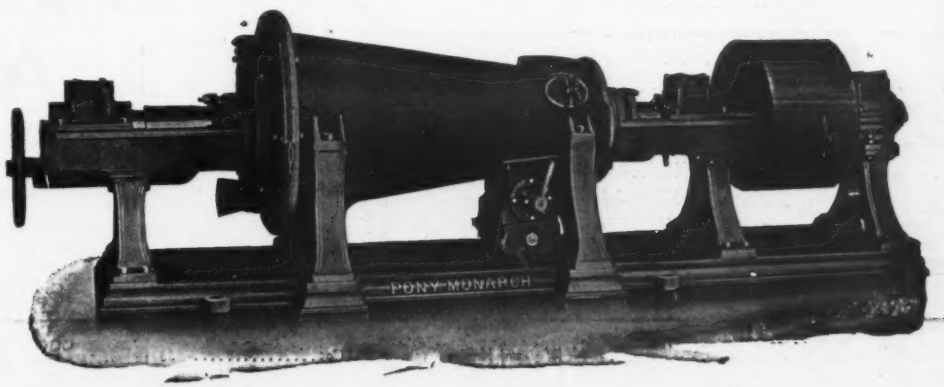
Our latest Improved Machine, three sizes; belt or direct connected motor driven. All Bearings self-oiling, adjustable and water-cooled. Fitted with Standard Steel Knives, Special Heat Treated Steel, Bronze, or Manganese Steel Plug and Shell Lining.

For full particulars apply to

DILLON MACHINE CO., Inc.
Builders of Paper Mill Machinery
Lawrence, Mass.

WE MAKE BEATERS AND JORDANS OF QUALITY

SIX SIZES OF JORDANS, BEATERS, FROM ¾ LBS. TO 3000 LBS.



The Noble & Wood Machine Co., Hoosick Falls, N.Y.

EASTERN COMPANY MANUFACTURING

BLEACHED SULPHITE

CLASSIFIED INDEX TO ADVERTISEMENTS

ACID SYSTEMS. Page
G. D. Jenssen Company ... —
ADDING MACHINE ROLLS.
Paper Manufacturing Co ... 73
AGALITE.
Union Talc Co ... 73
U. S. Talc Co ... 80
ALUM.
The Kalbfleisch Corp ... 42
Pennsylvania Salt Mfg. Co ... 80
Superior Chemical Co ... 67
Winkler Bros., Inc ... 79
ARCHITECTS AND ENGINEERS.
George F. Drew ... 72
Hardy S. Ferguson ... 72
William T. Field ... 72
George F. Hardy ... 72
G. D. Jenssen Company ... —
Management Engineering and Development Co. ... 73
H. B. Prather & Co ... 72
F. L. Smith ... 72
Stebbins Engineering Co ... 73
Thomas L. Tomlines & Son ... 72
Vitale & Rothery ... 72
Joseph H. Wallace & Co ... 72
ASBESTINE PULP.
International Pulp Co ... Front Cover
ASH-HANDLING MACHINERY.
Jeffrey Mfg. Co ... —
BALL MILLS.
The Crossley Machine Co ... 42
BARKERS.
Valley Iron Works ... 27
BED PLATES.
Dowd Knife Works, R. J ... —
BEARINGS (Collar Oiling).
Hill Clutch Co ... —
BEATER PADDLES.
Menasha Wood Split Pulley Co ... —
BEATING ENGINES.
Appleton Machine Co., The ... 29
Beloit Iron Works ... 25
Claflin Engineering Co ... 60
Dayton Beater & Hoist Co ... —
Dillon Machine Co., Inc ... 75
Dilts Machine Works, Inc ... 59
Downingtown Mfg. Co ... 78
Emerson Mfg. Co ... 71
J. & W. Jolly, Inc ... 9
Noble & Wood Machine Co ... 75
Shartle Bros. ... 69 and 70
Valley Iron Works ... 27
BEATER BED PLATES.
Bolton & Sons, Inc., J. W ... 9
BEATER ENGINE BARS.
Bolton & Sons, Inc., J. W ... 9
Dowd Knife Works, R. J ... —
BEATER HOODS.
Bird Machine Co ... 23
BELTING.
Goodyear Tire & Rubber Co ... —
Republic Rubber Co ... —
BOILERS.
Edge Moore Iron Co ... —
Heine Boiler Co ... 21
BRONZE CASTINGS.
Hyde Windlass Co ... 13
BUCKETS (Elevator).
Hendrick Mfg. Co ... 10
BUNDLING MACHINES.
Hudson-Sharp Machine Co ... —
CALENDER ROLLS.
Appleton Machine Co., The ... 29
Lobdell Car Wheel Co ... 4
Norwood Engineering Co ... 59
B. F. Perkins & Sons, Inc ... 11
Textile Finishing Machinery Co ... —
CARBON TOOLS.
Thomas L. Dickinson ... 74
CASEIN.
Casein Mfg. Co ... 3
Valley Iron Works ... 27
CENTRIFUGAL PUMPS. Page
CHAIN.
Jeffrey Mfg. Co ... —
CHEMICALS, COLORS, ETC.
Arnold Hoffman & Co., Inc ... —
Du Pont de Nemours Co., E. I ... —
Heller & Merz Co ... 13
Kuttroff, Pickhardt & Co ... 71
Mathieson Alkali Works, Inc ... —
White Tar Aniline Corporation, The ... 4
C. K. Williams & Co ... 80
CHEMISTS.
United States Testing Co ... 73
CLAY.
Atterbury Bros. ... Front Cover
English China Clay Sales Corporation ... 67
John W. Higman Co ... 74
Miner Edgar Co., The ... 67
Paper Makers Chemical Co ... 61
Star Clay Co ... 80
Western Paper Makers Chemical Co ... 61
CLUTCHES (Friction, Etc.).
Hill Clutch Co ... —
COGS.
N. P. Bowsher Co., The ... 80
Menasha Wood Split Pulley Co ... —
COMPRESSORS (Air).
The Nash Engineering Co ... 33
CONVEYORS (Pulpwood).
Jeffrey Mfg. Co ... —
Weller Mfg. Co ... 3
CORDAGE.
Columbian Rope Co ... —
CORES.
Elixman Paper Core Co ... —
CRANES (Electric).
Shepard Electric Crane & Hoist Co ... —
CREEPING MACHINES.
Hudson-Sharp Machine Co ... —
CUTTERS.
Smith & Winchester Mfg. Co ... 8
DIE CUTTERS.
Hoggeson & Pettis Mfg. Co ... 2
Independent Die Co., Inc ... —
DIGESTERS.
American Welding Co ... 12
Biggs Boiler Works Co ... —
DRINKING CUPS.
F. N. Burt Company, Ltd ... 35
Vortex Mfg. Co ... 31
DRIVES.
Westinghouse Electric & Mfg. Co ... —
DRIVES (Silent Chain).
Morse Chain Co ... 72
DRYERS.
Biggs Boiler Works Co ... —
The Coe Manufacturing Co ... 71
DRYER EXHAUSTS.
The Nash Engineering Co ... 33
DRYING SYSTEMS.
Open Coil Heater & Purifier Co ... 5
W. F. Pickles ... —
Ross Engineering Co., J. O ... 72
DYES, ANILINE.
Heller & Merz ... 13
National Aniline & Chemical Co ... —
White Tar Aniline Corporation, The ... 4
DYE STUFFS.
Du Pont de Nemours & Co., E. I ... —
ELECTRIC EQUIPMENT.
General Electric Co ... —
ENVELOPE MACHINES.
Potdevin Machine Co ... 7
F. L. Smithe Machine Co ... —
FAN PUMPS.
Valley Iron Works ... 27
FELTS AND JACKETS.
Appleton Woolen Mills ... 8
Bulkley Dunton & Co ... 7
Draper Bros. Co ... 60
Fitchburg Duck Mills ... —
F. C. Huyck & Son ... 11
Knox Woolen Company ... 7
Lockport Felt Co ... 39
Orr Felt & Blanket Co ... 61
Shuler & Benninghofen ... —
Waterbury Felt Co ... 74
Waterbury & Sons Co., H ... 73
FELT ROLLS.
Rodney Hunt Machine Co ... 60
FILTERING SYSTEMS.
Norwood Engineering Co ... 59
FLOOR COVERINGS.
L. Sonneborn & Son ... 59
FLOOR HARDENER (Concrete).
L. Sonneborn & Son ... 59
FLOW METER.
General Electric Co ... —
FOLDING MACHINES.
Hudson-Sharp Machine Co ... —
FOURDRINIER WIRES.
Appleton Wire Works ... 80
Buchanan & Bolt Wire Co ... 76
Cabble Excelsior Wire Mfg. Co ... 80
Cheney Bigelow Wire Works ... 71
Eastwood Wire Mfg. Co ... 80
Green Bay Wire Works ... —
Lindsay Wire Weaving Co ... 79
Joseph O'Neill Wire Works ... 79
The W. S. Tyler Company ... 79
FURNACE (Automatic).
Murphy Iron Works ... 72
GAUGES (Pressure, Indicating and Recording).
Bristol Co., The ... —
GUMMING AND GLUING MACHINERY.
Potdevin Machine Co ... 7
HOISTS (Electric).
Shepard Electric Crane & Hoist Co ... —
INVESTMENTS.
Taylor, Bates & Co ... 65
IRON EXTRACTORS.
Oakes Co., Roland ... —
JORDANS.
J. & W. Jolly, Inc ... 9
KNEADERS.
American Voith Contact Co ... 78
KNIVES, ETC.
Bolton & Sons, Inc., J. W ... 9
Dowd Knife Works, R. J ... —
Machinery Co. of America ... —
LUBRICANTS.
Vacuum Oil Co ... —
MICROMETERS.
Ashcroft Mfg. Co ... 74
E. J. Cady Co ... —
Foreign Paper Mills ... —
MICROMETER (Calipers).
Lobdell Car Wheel Co ... 4
MILL COGS.
N. P. Bowsher Co., The ... 80
MOTORS.
B. F. Perkins & Sons, Inc ... 11
MOTOR TRUCKS.
Packard Motor Car Co ... 60
OILS AND GREASE.
Vacuum Oil Co ... —
PACKING.
Jenkins Bros. ... 4
PAPER BAG MACHINERY.
Potdevin Machine Co ... 7
Smith & Winchester Mfg. Co ... 8
PAPER BAG MANUFACTURERS.
Lawrence Bag Co ... 71
Schorsch & Co ... 67
PAPER BOX BOARDS.
C. L. La Boiteaux Co ... 5
PAPER CORES.
Elixman Paper Core Co ... —
PAPER CUTTERS.
Hamblet Machine Co ... 2

Buchanan & Bolt Wire Company

ESTABLISHED 1878 AT HOLYOKE, MASS.

Makers of Highest Grade Fourdrinier Wires, Dandy Rolls, Cylinder Covers, Brass Wire Cloth of all Meshes for Paper, Pulp and Coating Mills—Quality Guaranteed

We make a Specialty of Fine Wires for Magazine and Book Papers

CLASSIFIED INDEX TO ADVERTISEMENTS

PAPER DEALERS. Page
Fernstrom Paper Co. 65
R. F. Hammond. Front Cover

PAPER EXPORTERS.
Hudson Trading Co. 2
Katzenstein & Keene, Inc. 4
Parsons Trading Co. Front Cover

PAPER MANUFACTURERS.
Bayless Mfg. Co. 60
Becker Paper Corporation. —
Brown Company 5
Collins Mfg. Co. 6
Diamond State Fibre Co. Front Cover
Eastern Mfg Co. 75
Eaton Dikeman Co. 12
Fort Howard Paper Co. 5
Franklin Paper Co. —
Hammermill Paper Co. —
Hanna Paper Corporation. 6
Howard Paper Co. 57
Missisquoi Pulp & Paper Co. 59
Mountain Mill Paper Co. 57
St. Regis Paper Co. 6
Sherman Paper Co. 73
Stratford Paper Co. 73
Wausau Sulphate Fibre Co. 9
West Virginia Pulp & Paper Co. 57

PAPER AND PULP MACHINERY.
Appleton Machine Co. 29
Bagley & Sewell Co. —
Baker Mfg. Co. 78
Beloit Iron Works. 25
Bird Machine Works. 23
Black-Clawson Co. —
Clark-Aiken Co. 11
Frank H. Davis. 67
Downingtown Mfg. Co. 78
Glens Falls Machine Works. 33
Hudson-Sharp Machine Co. —
Improved Paper Machinery. 35
J. & W. Jolly, Inc. 9
Sandy Hill Iron & Brass Co. 10
Shartle Bros. Machine Co. 69 and 70
Smith & Winchester Mfg. Co. 8
Trimbey Machine Works. —
Valley Iron Works. 27
Waterville Iron Works. —

PAPER MILL AGENTS.
Dillon & Barnes. 74
McIver, Dana T. 2

PAPER AND PULP MILL BROKERS.
Gibbs-Blower Co. 70

PAPER SPECIALIST.
Charles W. Bell. —

PAPER STOCK.
Atterbury Bros. Front Cover
Butterworth & Co., Inc., E. 73
Castle, Gottheil & Overton. 79
Gumbinsky Bros. 80
Hicks, Daniel M. 74
Mendelson Bros. Paper Stock Co. 73
Penn Paper & Stock Co. 73
Salomon Bros. & Co. 73
Train-Smith Co. Front Cover

PAPER TESTERS.
Ashcroft Mfg. Co. 74
E. J. Cady Co. —
Foreign Paper Mills. —
B. F. Perkins & Sons, Inc. 11
Thwing Instrument Co. —
Valley Iron Works. 27

PAPER TUBE MACHINERY.
Dietz Machine Works. 10
Grissinger Machine Works. 74

PAPER WAXING MACHINERY.
Potdevin Machine Co. 7

PERFORATING MACHINES.
Dietz Machine Works. 10

PERFORATED METAL.
Harrington & King Perforating Co. 59
Hendrick Mfg. Co. 10
Manhattan Perforated Metal Co. —
Charles Mundt & Sons. 61

PIPE (Genuine Wrought Iron). Page
A. M. Byers Co. —
Reading Iron Co. 31

PRESS ROLLS. Page
Rodney Hunt Machine Co. 60

PLUGS.
Menasha Wood Split Pulley Co. —

PLUGS (Wood).
O. L. Bartlett. —

PULP STONES.
International Pulp Stone Co. Front Cover
Lombard & Co. 61

PUMPS.
Frederick Iron & Steel Co. 7
Hayton Pump & Blower Co. —
Hudson-Sharp Machine Co. —
J. & W. Jolly, Inc. 9
Shartle Bros. 69 and 70

PUMPS (Vacuum).
The Nash Engineering Co. 33

PRESSURE BULKERS.
B. F. Perkins & Sons, Inc. 11

RAG CUTTERS.
B. F. Perkins & Sons, Inc. 11
Taylor Stiles & Co. —

RECORDING INSTRUMENTS.
Bristol Co., The. —
General Electric Co. —

RECORDING TACHOMETERS.
Bristol Co., The. —
General Electric Co. —

ROLL GRINDERS.
Lobdell Car Wheel Co. 4

ROSIN.
Hercules Powder Co. 3

ROSIN SIZE.
Arabol Mfg. Co. 79
Paper Makers Chemical Co. 61
Western Paper Makers Chemical Co. 61

ROTARY BLEACHING BOILERS.
Biggs Boiler Works Co. —

SAVEALLS.
Bird Machine Co. 23
J. & W. Jolly, Inc. 9

SATIN WHITE.
The Kalbfleisch Corp. 42
Paper Makers Chemical Co. 61
Western Paper Makers Chemical Co. 61

SCALES (Paper).
Fred Baker —
E. J. Cady & Co. —
Foreign Paper Mills. —

SCREENS.
Beloit Iron Works. 25
Bird Machine Co. 23
Central Mfg. Co. —
Wm. A. Hardy & Sons Co. 61
Union Screen Plate Co. 77

SHREDDERS (Pulp and Paper).
Valley Iron Works. 27

SKYLIGHTS.
E. Van Noorden & Co. 79

SLASHERS.
Ryther & Pringle Co. —

SLITTERS AND REWINDERS.
Beloit Iron Works. 25
C. Benninghofen & Sons. 73
Cameron Machine Co. 74
Dietz Machine Works. 10
Menasha Wood Split Pulley Co. —
Grissinger Machine Works. 74
Samuel M. Langston Co. 74

SODA PULP.
Columbian Paper Co. 74

SPLICING TISSUES.
E. M. Sergeant Co. 12

STARCH.
Corn Products Refining Co. 6

STEAM SPECIALTIES.
Crane Co. 74
Open Coil Heater & Purifier Co. 5

STITCHING MACHINERY.
Saranac Machine Co. —

STOCK REGULATORS.
Trimbey Machine Co. —

STOKERS.
Murphy Iron Works. 72

STRAW MAKING.
Samuel M. Langston Co. 74

SUCTION BOX COVERS.
Menasha Wood Split Pulley Co. —

SULPHITE, BLEACHED AND UNBLEACHED.
J. Andersen & Co. 4
The Borregaard Co., Inc. 65
Brown Co. 5
Bulkley, Dunton & Co. 14
Butterworth & Co., Inc., E. 73
Canadian Robert Dollar Co. 65
Craig-Becker Co., Inc. 3
Eastern Manufacturing Co. 74
Mead Sales Co., The. —
Price & Pierce, Ltd. Front Cover
Pulp and Paper Trading Co. 59

SULPHUR.
Texas Gulf Sulphur Co. 6
Union Sulphur Co. 67

TANKS (Water, Oil, etc.).
Biggs Boiler Works Co. —
W. E. Caldwell Co. 7
New England Tank & Tower Co. 79
Stearns Lumber Co., A. T. 2
Tokheim Oil Tank & Pump Co. —
Woolford Wood Tank Co. —

TEMPERATURE RECORDING.
Bristol Co. —
General Electric Co. —

TIMBER ESTIMATES.
The Bradley Sales Agency. 72
James W. Sewall. 72

TIME RECORDS.
Bristol Co. —
General Electric Co. —

TRANSMISSION MACHINERY.
H. W. Caldwell Co. 9
Hill Clutch Co. —
Reeves Pulley Co. —
Weller Mfg. Co. 3
J. & W. Jolly, Inc. 9

TURBINES.
J. & W. Jolly, Inc. 9

TURPENTINE.
Hercules Powder Co. 3

TWINES.
American Manufacturing Co. 29
National Patent Reed Sales Co. 61

VALVES.
Crane Co. 74
Jenkins Bros. 4

VAPOR ABSORPTION SYSTEMS.
Ross Engineering Co. 72

VENTILATING FANS.
B. F. Perkins & Sons, Inc. 11
Ross Engineering Co. 72

VEGETABLE PARCHMENT PAPERS.
Kalamazoo Vegetable Parchment Co. 57

WATER WHEELS.
J. & W. Jolly, Inc. 9

WAX PAPERS.
Lindsay Bros., Inc. 60

WOOD FLOUR.
Union Wood Flour Co. 73

WOOD PULP IMPORTERS.
American Wood Pulp Corp. 60
J. Andersen & Co. 4
Ira L. Beebe & Co. 12
The Borregaard Co., Inc. 65
Bulkley, Dunton & Co. 14
M. Gottesman & Co. —
Hammond, R. F. Front Cover
Hudson Trading Co. 2
E. J. Keller Company 12
Lagerloef Trading Co. 12
Mead Sales Co., The. —
Nilson, Lyon & Co., Inc. 37
A. J. Pagel & Co., Inc. 29
J. F. Patton & Co., Inc. 8
Perkins-Goodwin Co. 37
Scandinavian-American Trading Company, Front Cover

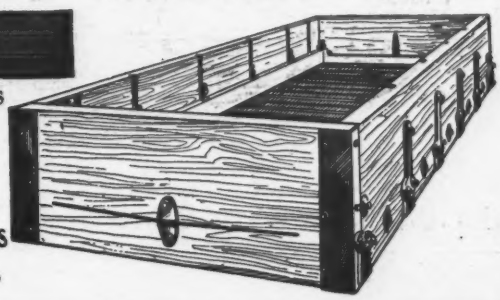
WOOD PULP MANUFACTURERS.
Proctor & Gamble Distributing Co. 39

WOOD ROLLS.
Rodney Hunt Machine Co. 60

Fitchburg, Mass., U. S. A.

UNION SCREEN PLATE COMPANY

Lennoxville, P. Q. Canada



UNION BRONZE (Best phosphorized Cast Metal) **SCREEN PLATES** ROLLED BRASS (Union Quality)

Old Plates RECLOSED and RECUT to accurate gauge.

UNION BRONZE SCREWS for Screen Plates

UNION BRONZE SUCTION BOX PLATES

Immediate Delivery of the Largest Orders. Satisfaction Guaranteed.

THE UNION WITHAM SCREEN PLATE VAT AND FASTENERS

THE ORIGINAL
Over One Thousand in Successful Operation

THE BEST
Recommended by Screen Makers

BAKER MANUFACTURING CORPORATION

Formerly

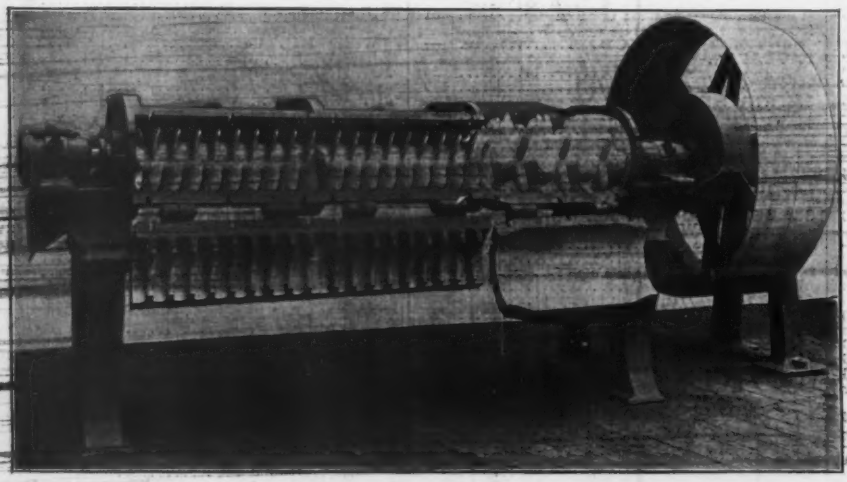
BAKER & SHEVLIN COMPANY

Sole Manufacturers of

THE MAGAZINE GRINDER

Have you seen the article which was read before the Paper Makers' Convention on Relative Efficiency of the Automatic Magazine and Pocket Grinders? If not, and you are interested, kindly advise and we will send you a copy.

BAKER MANUFACTURING CORPORATION, Saratoga Springs, N.Y.



VOITH KNEADERS

CONTINUOUS PROCESS

Repulp Broke, Shavings, Old Papers, Magazines, etc.

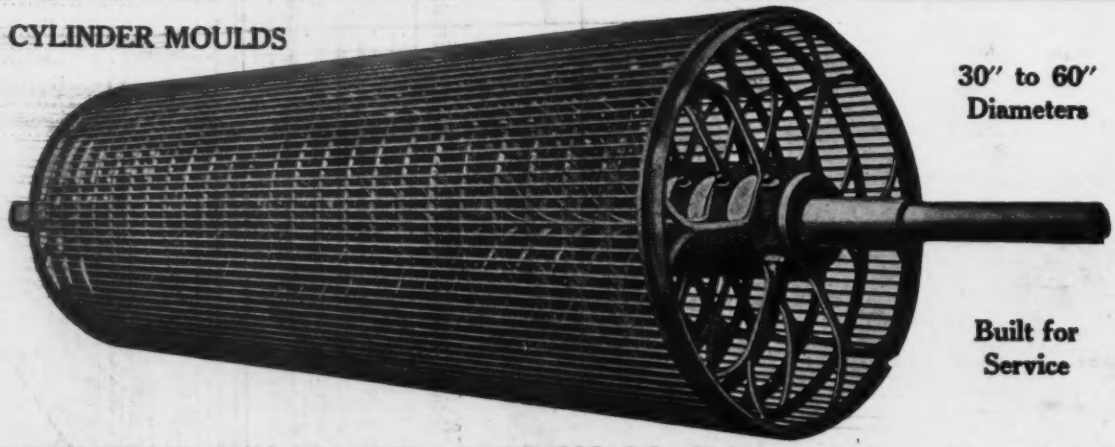
Write Us For Further Details

F. O. B. American or Canadian Factory

AMERICAN VOITH CONTACT CO.

280 Madison Ave. New York

CYLINDER MOULDS



30″ to 60″ Diameters

Built for Service

DOWNINGTOWN MANUFACTURING CO., E. Downingtown, Pa., U. S. A.

ALUM

FOR THE PAPER MAKER

Manufactured by

The Jarecki Chemical Co.

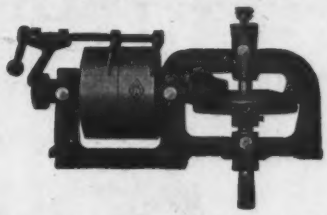
QUALITY SERVICE

Sole Selling Agents

ISAAC WINKLER & BRO.

CINCINNATI : : : : NEW YORK

AGITATOR DRIVES



Six Stock Sizes
Special Designs
"NETT-CO" line
is complete from
smallest to largest.

NEW ENGLAND TANK & TOWER CO.

30 CHURCH ST., N. Y. EVERETT, MASS.

LINDSAY FOURDRINIER WIRES

are THE wires

For Fast News Machines

or any others

Nuf Sed

THE LINDSAY WIRE WEAVING CO.

Collinwood Sta., Cleveland, Ohio

Dry Rosin Size

Brittle and easily soluble. Cheapest size out. Cheaper than mill made size. Also our hot and cold water sizes; standard quality. Cleaner, more uniform and economical than either mill made sizes or those offered by our competitors. Also Arabol Paper Size, Splicing Gums, Condensed Paste Powder, Paper Makers' Starches.

Arabol Manufacturing Co.

100 William Street NEW YORK

WE specialize in durable Fourdrinier Wires and Cylinder Wires in any metal desired up to and including 120 mesh in plain woven, double warp, triple chain, and twisted weaves.

Save two-thirds the cost and three-quarters of the expense of putting on brass and bronze wires by using our nickel alloy wires.

Joseph O'Neill Wire Works

Port Chester, N. Y.

Established 1906

FOREIGN and DOMESTIC

CASTLE, GOTTHEIL & OVERTON

Paper Stock
New Cuttings
and Rags

Jute Stock
Sizing, Sulphite
and Soda Pulps

200 FIFTH AVE. NEW YORK

Van Noorden Skylights

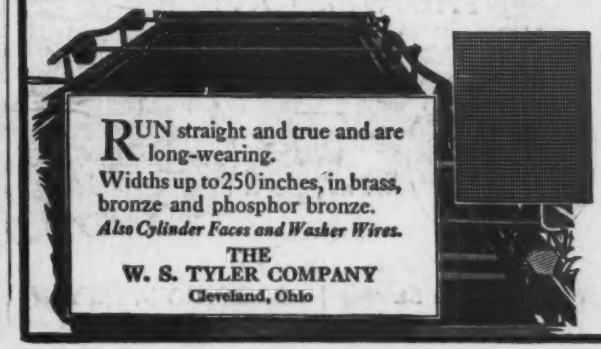
are as

Indispensable

To a modern Paper Mill as its important inner equipment. "DAYLITE" means Nature's light without weather or condensation drip.

E. VAN NOORDEN & CO. 103 Magazine St. Boston, Mass.

"TYLER" FOURDRINIER WIRES



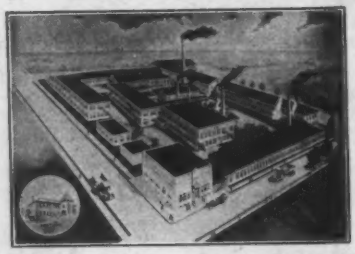
RUN straight and true and are long-wearing.
Widths up to 250 inches, in brass, bronze and phosphor bronze.
Also Cylinder Faces and Washer Wires.

THE
W. S. TYLER COMPANY
Cleveland, Ohio

XUM

EASTWOOD WIRE MFG. CO.

Fourdrinier Cylinder & Washer Wires in Brass and Bronze



Valves Cocks Fittings Unions and Castings in "Perfection" Bronze

Cylinder Moulds Blow Off Valves

BELLEVILLE, NEW JERSEY, U. S. A.

C. K. WILLIAMS & CO., EASTON PA.

Proprietors of the Penna. Dry Paint and Color Works and the Helios Dry Color, Chemical and Copperas Works of Allentown, Pa.

Manufacturers, Miners and Importers of Coloring Materials, such as Venetian Reds, Red, Brown, Black, Yellow, Oxides, Chome and other Ochres, also Paper Fillers—as Agalites, Mineral Pulp, Talc, China and other Clays.

COLORS FOR PAPER MANUFACTURERS' USE

Mill Cogs

ON SHORTEST POSSIBLE NOTICE

We make all kinds of Mill Cogs and have special facilities that will be of great service to you. We make a specialty of "ready dressed" cogs which are

READY TO RUN

the moment driven and keyed. Write at once for circular "G" and instruction sheets, free.

THE N. P. BOWSHER CO., South Bend, Ind.
Established 1882.

If you are not using

"G.B." 3RDS & BLUES

Your half stock is costing you more than it should. *Inquiries solicited*

GUMBINSKY BROS. CO.

America's Largest Packers of Rags and Waste Paper

2261 South Union Ave., Chicago, Illinois

AGALITE FILLER

UNITED STATES TALC CO.

GOUVERNEUR NEW YORK

NATRONA

Porous Alum

MANUFACTURED BY

PENNSYLVANIA SALT MFG. COMPANY

PHILADELPHIA

THE WM. CABBLE EXCELSIOR WIRE MFG. CO.

Established 1848
Incorporated 1870-1886

Manufacturers of Superior Fourdrinier Wires
Brass, Copper and Iron Wire Cloth of Every Description.
Best Quality of Wire Rope.

Write for Price List

74-90 Ainslie St. BROOKLYN, N. Y.

FOURDRINIER CYLINDER WASHER WIRES

50 years' experience as wire makers insures highest quality of product

"Appleton Wires Are Good Wires"

Appleton Wire Works Appleton, Wis.